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SECRETARY OF THE AIR FORCE**

**AIR FORCE INSTRUCTION 11-2AC-130H/U
VOLUME 2**



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Flying Operations

**AC-130H/U AIRCREW EVALUATION
CRITERIA**

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This instruction implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, AFPD 11-4, *Aviation Service*, Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation*, and AFI 11-202, Vol 2, *Aircrew Standardization/Evaluation Program*. It establishes evaluation criteria for initial and periodic aircrew qualification for all units operating AC-130H/U Gunships. It is used in conjunction with Air Force Instruction (AFI) 11-202, Vol 2, *Aircrew Standardization/Evaluation Program*, and Major Command (MAJCOM) supplements thereto. This publication does not apply to the Air National Guard (ANG) or to Air Force Reserve Command (AFRC) units. Subordinate units may supplement this instruction in accordance with (IAW) **Paragraph 1.6**. The Privacy Act of 1974 applies to certain information gathered pursuant to this instruction. The Privacy Act System Of Records Notice F011 AF XO A, Aviation Resource Management Systems (ARMS) applies and is available at <http://privacy.defense.gov/notices/usaf/>. The authority for maintenance of ARMS is 37 U.S.C. 301a (Incentive Pay), Public Law 92-204, Section 715 (Appropriations Act for 1973), Public Laws 93-570 (Appropriations Act for 1974), 93-294 (Aviation Career Incentive Act of 1974), DoDD 7730.57 (Aviation Career Incentive Act of 1974 and Required Annual Report, February 5, 1976, with Changes 1 and 2), and Executive Order 9397 (SSN) as amended by Executive Order 13478, Amendments to Executive Order 9397 Relating to Federal Agency Use of Social Security Numbers, November 18, 2008. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through MAJCOM publications/forms managers. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force

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SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. This revision updates all Grading Area Tables to reflect AFSOC/CV direction to maximize utilization of aircrew training devices, and clarifies evaluation procedures for BAQ crewmembers attaining mission qualification. **Chapter 2**, Evaluation Requirements, deletes C-130E/H aircraft; it follows the guidance of AFI 11-202, Vol 2 for grading criteria and Form 8/8A completion. **Chapter 3**, Instructor Evaluations, clarifies grading criteria for periodic Mission evaluations of Basic Aircraft Qualification (BAQ)-only instructors. **Chapter 4**, Pilot/Co-pilot Evaluations, aligns non-precision approach criteria with other C-130 series, and aligns precision approach tolerances with flight standards. **Chapter 5**, Navigator Evaluations, was changed to update guidance for qualification, initial mission, and recurring qualification/mission (QUAL/MSN) evaluations and to update grading criteria in areas 107, 116, 118, and 125. **Chapter 6**, Fire Control Officer (FCO) Evaluations, was updated to reflect current and updated equipment in the aircraft. **Chapter 7**, Electronic Warfare Officer (EWO) Evaluations, was changed to update periodic QUAL/MSN guidance and grading criteria in areas 151 and 152. **Chapter 8**, Flight Engineer Evaluations, allows more flexible timing for area 215. **Chapter 10**, Loadmaster Evaluations, eliminates the basic qualification prerequisite for mission evaluations. **Chapter 13**, Special Mission Aviation Evaluations, was added to implement the new 1A9XX Special Missions Aviation AFSC and to provide evaluation criteria for loadmasters and aerial gunners who have completed cross-utilization training. Tiering requirements have been included.

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Chapter 1

GENERAL INFORMATION

1.1. Objectives. The Aircrew Standardization and Evaluation Program is the commander's tool to validate mission readiness and the effectiveness of unit flying, to include documentation of individual aircrew member qualifications and capabilities.

1.2. General. This instruction establishes requirements and grading criteria for ground and flight phases of initial and periodic flight evaluations. All AC-130H/U Special Operations Forces (SOF) aircrew evaluations will be conducted in accordance with (IAW) this instruction and AFI 11-202, Vol 2, *Aircrew Standardization/Evaluation Program*, as supplemented. Specific areas for evaluation are prescribed to ensure an accurate assessment of the proficiency and capabilities of aircrews. Flight examiners use this AFI when conducting aircrew evaluations. Instructors use this AFI when preparing aircrews for qualification. Air Force Special Operations Command (AFSOC) is Lead MAJCOM for AC-130H/U operations.

1.3. Applicability. This instruction applies to all individuals performing crew duties on AC-130H/U aircraft.

1.4. Key words and Definitions.

1.4.1. "Will" and "Shall" indicate a mandatory requirement.

1.4.2. "Should" is used to indicate a preferred, but not mandatory, method of accomplishment.

1.4.3. "May" indicates an acceptable or suggested means of accomplishment.

1.4.4. "Note" indicates operations procedures, techniques, etc., considered essential to emphasize.

1.5. Waivers. IAW AFI 11-202, Vol 2, AF/A35 is the waiver authority for the USAF aircrew standardization and evaluation programs. Waiver authority for the contents of this document is MAJCOM Director of Operations, A3 for individual aircrew requirements. Submit requests for waivers to this instruction through Standards and Evaluation channels to HQ AFSOC/A3V. Post all waivers to this instruction in the individual's flight evaluation folder behind Tab 2. Document waivers IAW AFI 11-202, Vol 2, as supplemented.

1.5.1. Tier requirements refer to waiver authority based on level of risk.

1.5.1.1. "Tier 0" (T-0) requirements are reserved for requirements that non-compliance is determined and waived by respective non-Air Force authority.

1.5.1.2. "Tier 1" (T-1) requirements are reserved for requirements that non-compliance may put airman, mission, or program strongly at risk, and may only be waived by the MAJCOM/CC or delegate with concurrence of publication approver. When multiple MAJCOMs are affected, then T-1 is appropriate.

1.5.1.3. "Tier 2" (T-2) requirements are reserved for requirements that potentially put the mission at risk or potentially degrade the mission or program, and may only be waived by the MAJCOM/CC or delegate.

1.5.1.4. “Tier 3” (T-3) requirements are reserved for requirements that non-compliance has a remote risk of mission failure, and may be waived by the Wing/CC but no lower than the OG/CC.

1.6. Supplements. Units are encouraged to supplement this instruction with standard evaluation profiles that best fit the unit’s mission, equipment, and location. Using MAJCOMs will forward their supplements to AF/A3OI, through HQ AFSOC/A3V, for approval prior to publication. Units below MAJCOM level will forward one copy of each supplement to their MAJCOM OPR for prepublication review. (T-1)

1.7. Evaluation Procedures. During the crew briefing, the evaluator will inform the aircraft commander of any special requirements. Flight examiners will brief the examinee on the conduct, purpose, and requirements of the evaluation, as well as all applicable evaluation criteria, prior to flight. The examinee will accomplish all required mission planning. If an Operations Planning Team or Deployment Planning Team accomplishes mission planning, the examinee is ultimately responsible for the accuracy and completeness of all mission-planning paperwork. Flight examiners will be furnished a copy of necessary charts, flight logs, mission folders, and any additional items they deem necessary. The flight examiner should not occupy a primary crew position during evaluations to ensure the most comprehensive evaluation. If conditions warrant, however, the flight examiner may occupy a primary crew position during an evaluation. (T-2)

1.7.1. Flight examiners will ensure all required training and documentation is complete prior to initial/requalification evaluations. (T-2)

1.7.2. The examinee will be current for all events evaluated during a recurring evaluation. (T-2)

1.7.3. Flight examiners will not intentionally fail any equipment during flight evaluations, but may deny the use of systems not affecting safety of flight. (T-2)

1.7.4. Flight examiners will thoroughly debrief/critique all aspects of the flight. During the critique, the flight examiner will review the examinee's overall rating, specific deviations, area/subarea grades assigned, and any additional training required. (T-2)

1.8. Grading Instructions. All evaluations will follow the guidelines in AFI 11-202, Vol 2, as supplemented, and this volume. Examiners will use the criteria in this volume to accomplish all flight, simulator, and emergency procedures evaluations. To ensure standard and objective evaluations, flight examiners will be thoroughly familiar with prescribed evaluation criteria.

1.8.1. Area/Subarea Grades. Areas/subareas will have a two-level (Q/U) or three-level (Q/Q/U) grading system. Discrepancies will be documented against the listed subareas.

1.8.1.1. **Q.** ‘Q’ indicates the examinee demonstrated both a satisfactory knowledge of all required information and performed aircrew duties within the prescribed tolerances.

1.8.1.2. **Q-.** ‘Q-’ indicates the examinee is qualified to perform the assigned area/subarea tasks, but requires debriefing or additional training as determined by the flight examiner. Deviations must not exceed prescribed ‘Q-’ tolerances, jeopardize flight safety, or breach flight discipline. (T-2)

1.8.1.3. **U.** ‘U’ indicates that performance was outside allowable parameters, thereby compromising flight safety; that deviations from prescribed procedures/tolerances

adversely affected mission accomplishment; and/or evaluated performance constituted a breach of flight discipline. An examinee receiving an area/subarea grade of 'U' requires debriefing and/or additional training, as determined by the flight examiner.

1.8.2. Critical Areas. Critical areas require adequate accomplishment by the aircrew member in order to successfully achieve the mission objectives. If an aircrew member receives an unqualified grade in any critical area, the overall grade for the evaluation will also be unqualified. Critical areas are identified by “**(Critical)**” in the area title.

1.9. Evaluation Requirements. Evaluation profiles will reflect a sampling of the unit's missions. Evaluation tables are provided to summarize evaluation areas. Areas common to all crewmembers are contained in **Table 2.1**. Instructor evaluation areas are in **Table 3.1**. Evaluation areas unique to each crew position are located in their respective chapter. Each crew specific chapter defines required events. Events required in-flight only, and/or in simulators, and/or alternate methods (see **Paragraph 1.9.1** below) will be identified in the crew specific tables. For any areas without a note, flight examiners may evaluate at their discretion if observed. If required events are not observed, then the evaluation is incomplete and will be accomplished on another flight. If a required event cannot be accomplished, the evaluator will place a restriction on the AF Form 8, *Certificate of Aircrew Qualification*, or AF Form 8A, *Certificate of Aircrew Qualification (Multiple Aircraft)*, as applicable. (T-2)

1.9.1. Simulator. Weapon System Trainers (WSTs) with a C or greater certification (or Training Value Code (TVC) of 3 or greater for all areas evaluated as determined by simulator certification (SIMCERT)) may be used to accomplish evaluations. Simulator certifications will be located at the AFSOC/A3T website. Use the prefix SIM to indicate evaluation was administered in the simulator or Aircrew training Device (ATD). All Instrument (INSTM) evaluations may be accomplished in certified simulators. Do not conduct two consecutive Qualification (QUAL), Mission (MSN), or combined QUAL/MSN evaluations in the simulator. Initial (INIT) MSN and special qualification evaluations must be accomplished in the aircraft. **EXCEPTION:** Squadron Commander may, on a case-by-case basis, approve completion of INIT MSN evaluations in the simulator IAW **Paragraph 1.9.1.1** below, if the SQ/CC determines sufficient events were accomplished in flight. (T-2)

1.9.1.1. Evaluations requiring multiple sorties may be completed via different methods, so long as specific events are evaluated IAW **Paragraph 1.9** above. Document multiple sorties IAW AFI 11-202, Vol 2, as supplemented. Document in the comments section of AF Form 8/8A which portion(s) of the evaluation were conducted in the simulator. (T-2)

1.9.2. Alternate Method. When it is impossible to evaluate an area in flight due to equipment malfunctions, operational requirements, scheduling restrictions, etc., the area may be evaluated via alternate method (procedural trainer, or verbal examination) unless noted in the crew specific chapter. If, in the flight examiner's judgment, an item cannot be adequately evaluated by an alternate method, complete the evaluation on an additional flight. Document in the comments section of AF Form 8/8A which portions of the evaluation were conducted via alternate method. **EXCEPTION:** Certain items listed in **Table 2.1** and **Table 3.1** may be evaluated via alternate method without additional Form 8/8A comments. (T-2)

1.9.3. Grading Criteria. To the maximum extent possible, flight examiners will use the grading criteria in this volume to determine individual area grades. Exercise judgment when the wording of areas is subjective and when specific areas are not covered. Flight examiner

judgment will be the determining factor in arriving at the overall grade. Consider cumulative deviations when determining the overall grade. (T-2)

1.9.3.1. Base tolerances for in-flight parameters on conditions of smooth air and a stable aircraft. In some cases, momentary deviations are allowable provided the examinee applies prompt corrective action and such deviations do not jeopardize flying safety.

1.10. Unsatisfactory Performance. If the flight examiner observes an aircrew counterpart jeopardizing safe flight, the examiner will assume the duties of that aircrew member (provided the examiner's flight duty period does not exceed AFI 11-202, Vol 3, *General Flight Rules*, maximum flight duty period for an unaugmented crew). This does not mean the examiner must assume the examinee's position any time unsatisfactory performance is observed. If the examiner feels the examinee can continue safely with supervision, the examiner is not required to assume the examinee's duties. However, if the flight examiner assumes the examinee's duties, a Qualification Level 3 (Q-3) will be assigned as the overall grade. (T-2)

1.10.1. Evaluators must report deviations/discrepancies from established procedures/directives in any area, regardless of the individual's crew specialty, to squadron/group commander for evaluation and necessary action in accordance with AFI 11-202, Vol 2, as supplemented. (T-2)

1.11. Additional Training. Flight examiners are responsible for assigning additional training, at their discretion. Document additional training and completion IAW AFI 11-202, Vol 2, as supplemented. Any approved training device or medium may be used for additional training. (T2)

1.11.1. Additional training may be accomplished on the same flight as the evaluation, when unique situations present valuable training opportunities (i.e., crosswind landings). However, this option requires flight examiner discretion and judicious application. The examinee must be informed when the additional training begins and ends. (T-2)

1.12. Rechecks. Rechecks will normally be administered by a flight examiner other than the one who administered the original evaluation. (T-3)

1.13. Special Qualifications. Special qualification evaluations are administered for events that are not universal to all members in that crew position. Special qualification evaluations may be conducted separately or in conjunction with QUAL/MSN evaluations. There are no requisites for special qualification evaluations unless specified. Refer to the appropriate crew position for any special qualification evaluation requirements.

1.13.1. Special qualifications result in an AF Form 8/8A. Special qualification evaluations are SPOT evaluations IAW AFI 11-202, Vol 2, as supplemented. Further description of the specific event evaluated will be included in the mission description section of the comments block of the AF Form 8/8A. Although a unit may maintain 100 percent of its crew members qualified, this documentation is still required due to interfly and permanent change of station issues. (T-2)

1.14. Basic Aircraft Qualification. Units may maintain crew members in Basic Aircraft Qualification (BAQ) status as required. Evaluations and documentation for BAQ crew members will be IAW AFI 11-202, Vol 2, as supplemented, and this instruction. (T-2)

1.15. Multiple Qualifications. Aircrew members maintaining BAQ in multiple C-130 aircraft require one periodic QUAL evaluation. Crew positions, evaluation requirements, and approval authority are IAW AFI 11-202, Vol 2, as supplemented.

Chapter 2

EVALUATION REQUIREMENTS

2.1. General. The general criteria contained in this chapter apply to all crew positions and all evaluations. Use criteria and table in the appropriate crew position chapters for evaluations. (T2)

2.1.1. All evaluations will follow guidelines in AFI 11-202, Vol 2, as supplemented, and **Table 2.1** in this volume. This table depicts specific grading areas that apply to all crew position evaluations; **Table 3.1** applies to all instructor evaluations. (T-2)

2.1.2. Administer aircrew evaluations on any flight that as scheduled will accomplish all required items for that evaluation. Mission evaluations should be as realistic as possible with minimum of simulated events. Do not deviate from peacetime restrictions. (T-2)

2.2. Requirements.

2.2.1. Evaluate all crew members with guidance in the following subparagraphs, **Table 2.1**, and crew-specific chapters and tables. For instructor evaluations, also see **Table 3.1**. (T-2)

2.2.2. **Examinations.** All crew members will complete open and closed book examinations as a requisite to periodic evaluations. Except for pilots, all mission-qualified crew members will complete combined periodic QUAL/MSN examinations. Pilots must complete separate open and closed book examinations as requisites to periodic QUAL and MSN evaluations. Conduct requisite examinations IAW AFI 11-202, Vol 2, as supplemented. (T-2)

2.2.3. **Emergency Procedures Evaluation (EPE).** EPEs are requisites for all flight evaluations. EPEs may be conducted verbally, in-flight, in a simulator, or by another method determined by the examiner or unit Stan/Eval. Operations Group Standardization/Evaluations (OGVs) may develop EPE guides for flight examiner use in each crew position. EPEs should be scenario-driven, and tailored to the specific crew position. The EPE will include areas commensurate with the examinee's qualification and experience level. Emphasize emergency procedures and systems knowledge. Examiners should include other general knowledge areas as well. For mission evaluations, evaluate mission-specific equipment and situations. EPEs will include sufficient inflight and ground emergencies to evaluate the examinee's knowledge of systems and procedures to the flight examiner's satisfaction. (T-2)

2.2.3.1. Examinees may use publications that are normally available in-flight. The examinee must recite all BOLDFACE items from memory and should provide the initial steps of emergency procedures that, in the opinion of the examiner, would not allow time for reference. (T-2)

2.2.3.2. The following grading criteria will be used to grade individual items on EPEs for all crew positions. The flight examiner will assign an overall EPE grade (1, 2, or 3) in the Qualification Ground Phase block of the AF Form 8/8A, regardless whether all or a portion of the EPE was performed in-flight. **EXCEPTION:** For BOLDFACE use grading criteria in Area 4. (T-2)

2.3. Cockpit/Crew Resource Management (CRM). In accordance with AFI 11-290, *Cockpit/Crew Resource Management Training Program*, CRM skills will be evaluated during initial and periodic evaluations. CRM skills are integral to all phases of flight; therefore no specific area titled CRM exists. CRM skills are imbedded within specific grading criteria (mission planning, airmanship/situational awareness, crew coordination, communication, risk management/decision making, task management, and briefing/debriefing) and include all of the skills listed on the AF IMT 4031, *CRM Skills Criteria Training/Evaluation Form*. Therefore, use of the AF IMT 4031 is unnecessary for evaluations. (T-2)

2.4. Formal Course Evaluations. Fly syllabus evaluations IAW syllabus mission profile guidelines if stated, or on a mission profile developed from syllabus training objectives. All required areas must be evaluated for the type of evaluation being flown, IAW guidance in this volume. Grade training objectives and related areas using the performance criteria in this volume. Formal course guidelines may be modified, based on local operating considerations or examiner judgment, to complete the evaluation. (T-2)

2.5. 14th Weapons School. Evaluations of 14th Weapons School personnel will conform to guidance in AFI 11-202, Vol 2, as supplemented. (T-2)

2.6. Currency of Flight Publications. Use Area 12 criteria of General Areas. Required flying publications are specified in AFI 11-2AC-130, Vol 3, *AC-130 Operations Procedures*.

2.7. General Grading Criteria.

2.7.1. Areas 1 through 19: The following subparagraphs contain grading criteria for the areas listed in **Table 2.1**.

2.7.1.1. Area 1. Safety (CRITICAL).

2.7.1.1.1. **Q.** Was aware of and complied with all safety factors required for safe aircraft/equipment operation and mission accomplishment. Identified and assessed risk appropriately. Properly considered consequences of decisions.

2.7.1.1.2. **U.** Not aware of, and/or did not comply with all safety factors required for safe aircraft/equipment operation or mission accomplishment. Failed to properly identify and assess risk. Failed to consider consequences of decisions. Operated the aircraft/equipment in a dangerous manner.

2.7.1.2. Area 2. Aircrew Discipline (CRITICAL).

2.7.1.2.1. **Q.** Demonstrated strict professional flight and crew discipline throughout all phases of the mission.

2.7.1.2.2. **U.** Failed to exhibit strict flight and crew discipline. Violated or ignored rules or instructions.

2.7.1.3. Area 3. Airmanship/Situational Awareness (CRITICAL).

2.7.1.3.1. **Q.** Executed the assigned mission in a timely, efficient manner. Anticipated situations that would have adversely affected the mission, and corrected them. Made appropriate decisions based on available information. Recognized a loss in situational awareness in self or others, and took appropriate action to regain. Demonstrated situational awareness throughout the mission and conducted the flight with a sense of understanding and comprehension.

2.7.1.3.2. **U.** Decisions or lack thereof resulted in failure to accomplish the assigned mission. Demonstrated poor judgment to the extent that the mission or safety was compromised. Failed to recognize a loss of situational awareness in self or others.

Table 2.1. General Grading Areas (All Crew Positions and All Evaluations).

Area	Notes	Area Name
1	2	Safety - CRITICAL
2	2	Aircrew Discipline - CRITICAL
3	2	Airmanship/Situational Awareness - CRITICAL
4	3, A	BOLDFACE - CRITICAL
5	3	Emergency Procedures Evaluation (EPE)
6	2	Crew Coordination
7	3	Mission Planning
8	3	Knowledge of Directives
9	2	Preflight
10	2	Use of Checklist
11	3	Forms/Reports/Logs
12	3	Personal/Professional Equipment/Flight Publications
13	3, 4	Emergency and Life Support Equipment/Procedures
14	3, B	Briefings/Debriefings
15	3, C	Classified Material/Operations Security
16	3	Anti-hijacking/Aircraft Security
17	2	Communication
18	3	Risk Management/Decision Making
19	2	Task Management
Notes: 1. Required in-flight 2. Required in-flight or simulator certified for this event 3. May be evaluated via alternate method without additional Form 8/8A remarks 4. Grade if observed. Not required if evaluated as part of the EPE A. Only required for QUAL evaluation B. Required for all crew positions responsible for presenting briefings/debriefings C. Required for mission evaluations only		

2.7.1.4. Area 4. BOLDFACE (CRITICAL).

2.7.1.4.1. **Q.** Able to recite/write emergency BOLDFACE items correctly with no discrepancies.

2.7.1.4.2. **U.** Unable to recite/write emergency BOLDFACE items correctly.

2.7.1.5. Area 5. Emergency Procedures Evaluation.

2.7.1.5.1. **Qualification Level-1.** Satisfactory systems/procedural knowledge. Operated within prescribed limits and correctly diagnosed problems. Performed and/or explained proper corrective action, in the proper sequence, for each type of malfunction. Accomplished all required checklists and/or effectively used available aids. Thoroughly described the location, use, and limitations of emergency equipment.

2.7.1.5.2. **Qualification Level-2.** Marginal systems/procedural knowledge. Slow to analyze problems or apply proper corrective actions. Did not effectively use checklist and/or available aids. Minor omissions or deviations in describing the location, use, and limitations of emergency equipment.

2.7.1.5.3. **Qualification Level-3.** Unsatisfactory systems/procedural knowledge. Failed to analyze problem or take corrective actions. Failed to accomplish required checklists and/or unable to locate information in available aids. Major omissions or deviations in describing the location, use, and limitations of emergency equipment.

2.7.1.6. Area 6. Crew Coordination.

2.7.1.6.1. **Q.** Effectively coordinated with other crew members during all phases of the mission. Provided direction/information when needed.

2.7.1.6.2. **Q-.** Crew coordination was limited though adequate to accomplish the mission. Slow to provide direction/information when needed. Coordination was lacking with other crew members to the extent minor deviations or omissions caused delays, confusion, and/or negatively impacted crew situational awareness.

2.7.1.6.3. **U.** Poor crew coordination that negatively affected mission accomplishment or safety of flight. Failed to provide direction/information when needed. Significant breakdown in coordination with other crew members. Crew coordination was lacking to the extent the mission accomplishment was significantly degraded.

2.7.1.7. Area 7. Mission Planning.

2.7.1.7.1. **Q.** Checked all factors applicable to flight such as Flight Information Publications, weather, Notice to Airman System, alternate airfields, flight logs, performance data, fuel requirements, and charts. When required, extracted necessary information from air tasking order/frag. Aware of the available alternatives if unable to complete the mission as planned. Read/initialed all items in Flight Crew Information File/Read Files. Prepared at briefing time.

2.7.1.7.2. **Q-.** Minor errors or omissions detracted from mission effectiveness, but did not affect mission accomplishment. Limited knowledge of performance capabilities or approved operating procedures/rules.

2.7.1.7.3. **U.** Major errors or omissions would have prevented a safe or effective mission. Unsatisfactory knowledge of operating data or procedures. Did not review or initial Go/No-Go items. Not prepared at briefing time.

2.7.1.8. Area 8. Knowledge of Directives.

2.7.1.8.1. **Q.** Prepared and completed mission in compliance with existing instructions and directives. Demonstrated knowledge of operating procedures and restrictions and where to find them in the correct publications.

2.7.1.8.2. **Q-.** Minor deviations to established procedures. Unsure of some directives and/or had difficulty locating some information in appropriate publications. Any instances of non-compliance did not jeopardize safety.

2.7.1.8.3. **U.** Unaware of established procedures and/or could not locate them in the appropriate publication in a timely manner. Failed to comply with a procedure could have jeopardized safety or mission success.

2.7.1.9. Area 9. Preflight.

2.7.1.9.1. **Q.** Completed systems preflight/inspections IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

2.7.1.9.2. **Q-.** Minor deviations from established systems pre-flight/inspection. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

2.7.1.9.3. **U.** Failed to preflight critical component or could not conduct a satisfactory preflight/inspection. Individual techniques unsafe and/or in violation of established procedures.

2.7.1.10. Area 10. Use of Checklist.

2.7.1.10.1. **Q.** Consistently used the correct checklist and gave the correct response at the appropriate time throughout the mission.

2.7.1.10.2. **Q-.** Checklist responses were untimely and/or crew member required continual prompting for correct responses.

2.7.1.10.3. **U.** Used incorrect checklist or consistently omitted checklist items. Was unable to identify the correct checklist to use for a given situation. Omitted or did not complete checklist(s) at the appropriate time.

2.7.1.11. Area 11. Forms/Reports/Logs.

2.7.1.11.1. **Q.** All required forms and/or flight plans were complete, accurate, readable, accomplished on time and IAW applicable directives. Related an accurate debrief of significant events to applicable agencies (Intel, Weather, Maintenance, etc.).

2.7.1.11.2. **Q-.** Minor errors on forms and/or flight plans did not affect conduct of the mission. Inaccurately reported some information due to minor errors, omissions, and/or deviations.

2.7.1.11.3. **U.** Did not accomplish required forms and/or flight plans. Omitted or incorrectly reported significant information due to major errors, omissions, and/or deviations.

2.7.1.12. Area 12. Personal/Professional Equipment/Flight Publications.

2.7.1.12.1. **Q.** Had all required personal and professional equipment. Displayed satisfactory knowledge of the care and use of such equipment and the contents of required publications. Required equipment inspections were current. Publications were current, contained all supplements/changes and were properly posted.

2.7.1.12.2. **Q-.** Did not have all required personal/professional equipment or had limited knowledge of the use or the content of required publications. Publications contained deficiencies that would not impact flight safety or mission accomplishment.

2.7.1.12.3. **U.** Did not have required personal/professional equipment essential for the mission. Unsatisfactory knowledge of the care/use of equipment or the content of required publications. Required equipment inspections were overdue or equipment was unserviceable. Publications were outdated and/or contained deficiencies impacting flight safety or mission accomplishment.

2.7.1.13. Area 13. Emergency and Life Support Equipment/Procedures.

2.7.1.13.1. **Q.** Satisfactory systems/procedural knowledge. Displayed satisfactory knowledge of location and use of emergency and life support equipment. Operated within prescribed limits and correctly diagnosed problems. Performed/explained proper wear, use, and corrective action for each type of equipment/malfunction. Effectively used available aids.

2.7.1.13.2. **Q-.** Marginal systems/procedural knowledge. Limited knowledge of location and use of emergency and life support equipment. Operated within prescribed limits but was slow to analyze problems or apply proper corrective actions. Did not effectively use, omitted, or deviated in use of checklist and/or available aids.

2.7.1.13.3. **U.** Unsatisfactory systems/procedural knowledge. Displayed unsatisfactory knowledge of emergency and life support equipment. Exceeded TO limitations. Unable or failed to analyze problem or take proper corrective action. Did not use checklist and/or available aids.

2.7.1.14. Area 14. Briefings/Debriefings.

2.7.1.14.1. **Q.** Contributed to the briefing content to ensure it included all applicable information. Briefings effectively organized and professionally presented in a logical sequence. Covered all pertinent items. Established objectives for the mission. Presented all training events and special interest items. Effectively used available briefing aids. Concluded briefing to allow crew transport on time. Debriefed mission with appropriate feedback.

2.7.1.14.2. **Q-.** Allowed omission of items pertinent but not critical to the mission. Events out of sequence, hard to follow, some unnecessary repetition. Some difficulty communicating clearly. Did not make effective use of available briefing aids. Limited discussion of training events or special interest items. Dwelled on non-essential items. Not fully prepared for briefing. Debrief covered key points, but lacked detail, constructive feedback, and/or corrective actions.

2.7.1.14.3. **U.** Failed to conduct/attend required briefings. Failed to use briefing aids. Omitted essential items or did not correct erroneous information that could affect mission success. Demonstrated lack of knowledge of subject. Briefing poorly

organized and not presented in a logical sequence. Presented erroneous information that would affect safe/effective mission accomplishment. Presentation created doubts or confusion. Failed to discuss training events or special interest items. Late crew transport due to excessively long briefing. Debrief was ineffective. Placed blame and/or provided inappropriate corrective actions.

2.7.1.15. Area 15. Classified Material/Operations Security.

2.7.1.15.1. **Q.** Demonstrated thorough knowledge of communications/operations security procedures and courier procedures (if applicable). Had positive control of classified documents and information used throughout the mission. Properly stored, handled, and/or destroyed all classified/Communication Security (COMSEC) material or information generated during the mission. Practiced sound COMSEC/Operations Security (OPSEC) during all phases of the mission. Identified, requested and obtained all cryptological material required for the mission.

2.7.1.15.2. **Q-.** Limited knowledge of COMSEC/OPSEC procedures and/or courier procedures (if applicable). Limited knowledge of proper storage, handling, and destruction procedures would not have resulted in compromise of classified material/COMSEC, and did not impact mission accomplishment. Identified cryptological material required for mission, but was slow in requesting/obtaining material or did so only after being prompted.

2.7.1.15.3. **U.** Unsatisfactory knowledge of COMSEC/OPSEC. Classified documents, COMSEC or information would have been compromised as a result of improper control by examinee. Unfamiliarity with OPSEC procedures had or could have had a negative impact on mission accomplishment. Failed to identify, request or obtain all cryptological materials required for the mission.

2.7.1.16. Area 16. Anti-Hijacking/Aircraft Security.

2.7.1.16.1. **Q.** Explained proper anti-hijacking/aircraft security procedures.

2.7.1.16.2. **Q-.** Difficulty explaining proper anti-hijacking/aircraft security procedures.

2.7.1.16.3. **U.** Could not explain proper anti-hijacking/aircraft security procedures.

2.7.1.17. Area 17. Communication.

2.7.1.17.1. **Q.** Communicated in a clear and effective manner. Asked for or gave constructive feedback as necessary. Actively sought other crew member opinions and ideas. Used precise, standard terminology.

2.7.1.17.2. **Q-.** Unclear communication led to repetition or misunderstanding. Slow to ask for or give constructive feedback. Inconsistent use of precise, standard terminology.

2.7.1.17.3. **U.** Failed to communicate effectively. Continuously interrupted others, mumbled, and/or conduct/attitude was detrimental to communication among crew members. Withheld information and failed to ask for/respond to constructive criticism. Failed to use precise, standard terminology.

2.7.1.18. Area 18. Risk Management/Decision Making.

2.7.1.18.1. **Q.** Crew member appropriately assessed and mitigated risk in the decision making process. Crew member identified, planned, briefed, and executed alternative mission activity in response to in-flight contingencies in a timely manner after appropriately weighing the risk versus the mission priority.

2.7.1.18.2. **Q-.** Crew member was slow to or made minor errors in assessing and mitigating risk in the decision making process. Crew member was slow to identify, plan, brief, or execute alternative mission activities in response to contingencies.

2.7.1.18.3. **U.** Crew member failed to assess and mitigate risk in the decision making process. Failed to make or participate in crew decisions or withheld information that would have corrected an unsafe situation.

2.7.1.19. Area 19. Task Management.

2.7.1.19.1. **Q.** Recognized and requested assistance when task-saturated. Properly prioritized multiple tasks and effectively used available resources, ensuring smooth mission execution.

2.7.1.19.2. **Q-.** Poor task prioritization and inefficient use of available resources resulted in less than optimum mission execution. Slow to recognize and request assistance when task-saturated.

2.7.1.19.3. **U.** Failed to prioritize multiple tasks and did not use available resources.

Chapter 3

INSTRUCTOR EVALUATIONS

3.1. General. The instructor grading criteria apply to initial, requalification, and all recurring instructor evaluations. The examinee must demonstrate the ability to instruct in a safe and effective manner. To maintain Instructor qualification, instructors must demonstrate instructional ability on all recurring evaluations. (T-2)

3.2. Requirements. Evaluate instructors on areas listed in **Table 3.1**. Instructors must maintain qualification in all areas they will instruct. Instructor evaluations may be stand-alone evaluations or accomplished in conjunction with recurring evaluations. If able, conduct INIT INSTR evaluations with candidates instructing actual students. Otherwise, the flight examiner may act as the student. A requalification instructor evaluation is required anytime an instructor is unqualified for any reason to include commander-directed downgrades. (T-2)

3.3. Instrument (INSTM). Instrument evaluations of instructors may be accomplished in any aircraft for which the examinee maintains BAQ.

3.3.1. Initial/Requalification. Evaluate instructor candidates on instructor performance during a representative sample of unit's basic maneuvers. The examiner will act as student during maneuvers that are considered high risk. (T-2)

3.3.1.1. Evaluate instructor pilot candidates' instructional ability during representative samples of emergency and instrument procedures. (T-2)

3.4. Qualification (QUAL). Qualification evaluations of instructors will be accomplished in the examinee's primary aircraft. (T-2)

3.4.1. Initial/Requalification. Evaluate instructor candidates on instructor performance during a representative sample of unit's basic maneuvers. The examiner will act as student during maneuvers that are considered high risk. (T-2)

3.4.1.1. Evaluate instructor pilot candidates' instructional ability during a representative sample of emergency and qualification procedures. Also, instructor pilot candidates must demonstrate each type of landing applicable to the aircraft from the instructor position. (T-2)

3.5. Mission (MSN). Mission evaluations of instructors will be accomplished in the crew member's primary aircraft. Evaluate instructional ability during a representative sample of the unit's mission events. (T-2)

3.5.1. Initial/Requalification. Accomplish the initial instructor evaluation on a mission that permits accomplishment of all required instructor areas. (T-2)

3.5.2. Recurring. See **Table 3.1**, Note 4 for recurring MSN evaluations of BAQ-only instructors.

3.6. Instructor Grading Criteria.

Table 3.1. Instructor Grading Areas (All Crew Positions).

Area	Notes	Area Name
20	3	Mission Preparation
21	2	Instructional Ability
22	3	Instructor Knowledge
23	3	Briefings/Debriefings/Critique
24	2, 4	Demonstration of Maneuvers/Procedures
25-29		Reserved for future use
Notes: 1. Required in-flight 2. Required in-flight or simulator certified for this event 3. May be evaluated via alternate method without additional Form 8/8A remarks 4. Not required on MSN evaluations of Instructors certified as “BAQ only”		

3.6.1. **Areas 20 through 29:** The following subparagraphs contain grading criteria for the areas listed in [Table 3.1](#)

3.6.1.1. **Area 20. Mission Preparation.**

3.6.1.1.1. **Q.** Thoroughly reviewed student's training folder. Ascertained student's present level of training. Assisted student in pre-mission planning and allowed student time for questions. Correctly prioritized training events. Gave student a clear idea of mission training objectives.

3.6.1.1.2. **Q-.** Did not thoroughly review student's training folder or correctly ascertain student's present level of training. Caused student to hurry pre-mission planning. Poorly prioritized training events. Training plan/scenario made poor use of time.

3.6.1.1.3. **U.** Did not review student's training folder. Did not ascertain student's present level of training. Did not assist student with pre-mission planning or did not allow time for questions. Did not prioritize training events. Failed to give student a clear idea of mission training objectives, methods, and sequence of events.

3.6.1.2. **Area 21. Instructional Ability.**

3.6.1.2.1. **Q.** Demonstrated proper instructor ability and communicated effectively. Provided appropriate guidance when necessary. Planned ahead, and provided accurate, effective, and timely instruction. Identified and corrected potentially unsafe maneuvers/situations.

3.6.1.2.2. **Q-.** Problems in communication or analysis degraded effectiveness of instruction. Accomplished the above tasks with minor discrepancies that did not affect safety or adversely affect student progress.

3.6.1.2.3. **U.** Unable to effectively communicate, provide timely feedback. Performed or taught improper procedures/techniques/tactics to the student. Did not provide corrective action when necessary. Did not plan ahead or anticipate student

problems. Did not identify unsafe maneuvers/situations in a timely manner. Made no attempt to instruct.

3.6.1.3. Area 22. Instructor Knowledge.

3.6.1.3.1. **Q.** Demonstrated a high level of knowledge of all applicable aircraft systems, techniques, procedures, missions, publications and tactics to be performed. Completed appropriate training records accurately. Comments were clear and pertinent.

3.6.1.3.2. **Q-.** Minor errors/deficiencies in knowledge of above areas did not affect safety or adversely affect student progress. Minor errors or omissions in training records. Comments were incomplete or slightly unclear.

3.6.1.3.3. **U.** Lack of knowledge of publications or procedures seriously detracted from instructor effectiveness. Could not apply knowledge of above areas. Did not complete required forms or records. Comments were invalid, unclear, or did not accurately document performance.

3.6.1.4. Area 23. Briefings/Debriefings/Critique.

3.6.1.4.1. **Q.** Briefings were well organized, accurate, and thorough. Reviewed student's present level of training and defined mission events to be performed. Showed an excellent ability during the critique to reconstruct the flight, offer mission analysis, and provide guidance where appropriate. Training grade reflected the actual performance of the student relative to the standard. Pre-briefed the student's next mission, if required.

3.6.1.4.2. **Q-.** Minor errors or omissions in briefings and/or critique did not affect safety or adversely affect student progress.

3.6.1.4.3. **U.** Briefings/debriefings were marginal or non-existent; major errors or omissions in briefings/debriefings. Did not review student past performance. Analysis of events or maneuvers was incomplete, inaccurate, or confusing. Training grade did not reflect actual performance of student. Overlooked or omitted major discrepancies. Incomplete pre-briefing of student's next mission, if required.

3.6.1.5. Area 24. Demonstration of Maneuvers/Procedures.

3.6.1.5.1. **Q.** Effectively demonstrated procedures and techniques. Provided concise, meaningful, and timely in-flight commentary. Had thorough knowledge of applicable aircraft systems, procedures, publications, and instructions.

3.6.1.5.2. **Q-.** Performed required maneuvers/procedures with minor deviations from prescribed parameters. In-flight commentary was sometimes unclear or poorly timed, interfering with student performance. Discrepancies in the above areas did not adversely affect safety or student progress.

3.6.1.5.3. **U.** Was unable to properly perform required maneuvers/procedures. Made major procedural errors. Did not provide in-flight commentary and/or in-flight commentary was incorrect or unsafe. Insufficient knowledge of aircraft systems, procedures, and/or proper source material.

3.6.1.6. Areas 25 - 29. Reserved for future use.

Chapter 4

PILOT/COPILOT EVALUATIONS

4.1. General. All pilots and copilots require INSTM and QUAL evaluations. MSN qualified pilots/copilots require a MSN evaluation. Copilots will be evaluated to the same area standards as pilots unless specified otherwise. Copilot crew coordination will not include duties and responsibilities expected of an aircraft commander. (T-2)

4.1.1. Pilots will fly MSN and QUAL evaluations in their primary Mission Design Series (MDS). INSTM evaluations may be conducted in any MDS for which the examinee maintains BAQ. Recurring INSTM, QUAL, and/or MSN evaluations may be combined. (T-2)

4.2. Requirements. Refer to [Chapter 2](#) for all evaluations. Instructors will demonstrate instructional ability on all periodic evaluations; refer to [Chapter 3](#) for instructor evaluation grading areas and criteria. Pilot/copilot specific areas are listed in this chapter. (T-2)

4.3. Instrument (INSTM). See [Table 4.1](#) for required INSTM evaluation areas. Ensure requisites are completed per AFI 11-202, Vol 2, as supplemented. Conduct the INSTM evaluation in-flight or in a Weapon System Trainer (WST) certified to accomplish specified events. (T-2)

4.4. Qualification (QUAL). See [Table 4.1](#) for required QUAL evaluation areas. Ensure requisites are completed per AFI 11-202, Vol 2, as supplemented. Conduct the QUAL evaluation in-flight or in a Weapon System Trainer (WST) certified to accomplish specified events. (T-2)

4.5. Mission (MSN). For all mission evaluations, evaluators will ensure that the profile includes adequate events to thoroughly measure knowledge of specific employment procedures to include tactical defensive measures, tactical recovery/self-contained approach (SCA), and current special interest items. Conduct the evaluation on a live fire mission. Pilots must shoot Auto-fixed (AC-130H) or Fixed (AC-130U) and one other mode of fire. Dry fire profiles are adequate for copilot evaluations. Loss of mission qualification does not affect basic qualification. See [Table 4.2](#) and subparagraph below for MSN evaluation requirements. (T-2)

4.5.1. Initial/Requalification Air to Air Refueling (AAR) Contact (not required for recurring evaluations). Pilots must demonstrate the ability to accomplish a sustained fuel transfer per grading criteria of Area 60. Except for breakaway, evaluate emergency procedures verbally. **Note:** BAQ pilots at all qualification levels may be qualified/certified in AAR. If the INIT or RQ AAR evaluation is not administered during a corresponding INIT or RQ MSN evaluation, it will be documented as a SPOT evaluation IAW AFI 11-202, Vol 2, as supplemented. Recurring evaluation of AAR (not required) may be conducted on recurring QUAL evaluations. (T-2)

4.6. Special Qualifications. Not applicable.

4.7. Grading Criteria. (T-2)

4.7.1. **Areas 1 through 19:** Use general evaluation grading criteria in [Chapter 2](#) of this volume.

4.7.2. **Areas 20 through 29:** Use instructor grading criteria in **Chapter 3** (if applicable).

4.7.3. **Areas 30 through 99:** The following subparagraphs contain the evaluation grading criteria for the grading areas listed in **Table 4.1** and **Table 4.2**. **Note:** The general criteria in **Table 4.3** apply during all phases of flight except as noted for specific events and instrument final approaches.

Table 4.1. Pilot/Copilot INSTM/QUAL Grading Areas.

Area	Notes	Area Name	QUAL	INSTM
30	3	Ground Operations/Taxi	X	
31	2	Takeoff	X	
32	3, 6	Instrument Departure		X
33	3	Enroute Navigation		X
34	3	Descent/Arrival Procedures		X
35	2	Holding/Procedure Turn		X
36	2, 5, 7	Precision Approach (PAR or Instrument Landing System)		X
37	2, 5, 7	Non-Precision Approach (TACAN, VOR, LOC, NDB, ASR)		X
38	2	Circling/Side-Step Approach		X
39	2	Engine-Out Approach		X
40	2	Missed Approach/Go-Around		X
41	2	Engine-Out Go-Around	X	
42	3	Visual Flight Rules Procedures/Patterns	X	
43		Final Approach and Landing		
43a	2	100 Percent Flap Landing	X	
43b	2	50 Percent Flap Landing	X	
43c	3, 4	No Flap Landing	X	
43d	2	Engine-Out Landing	X	
43e	2	Touch-and-Go Landing	X	
44	3	After Landing/Engine Shutdown	X	
45	3	Fuel Conservation	X	
46-49		Reserved for future use		

Notes:

1. Required in-flight
2. Required in-flight or simulator certified for this event
3. In-flight or alternate method
4. Aircraft commanders/instructors only
5. Only one of the two required approaches may be controller directed (PAR/ASR)
6. Instrument departures should transition to instruments below 200 feet
7. Instrument approaches should transition to outside references at/above approach minimums

Table 4.2. Pilot/Copilot MSN Grading Areas.

Area	Notes	Area Name
50	2	Sensor Alignment
51	3	Pre-strike
52	2	Tweak Procedures
53	2	Geometry Analysis
54	2, 4	Target Acquisition
55	2, 4	Gunnery
56	2, 5	Throttle Control
57	3	Employment Tactics (Any Two): <ul style="list-style-type: none"> a. Close Air Support (CAS) <ul style="list-style-type: none"> 1. Convoy Escort 2. Urban Operations 3. Troops in Contact (TIC) b. Air Interdiction <ul style="list-style-type: none"> 1. Targets of Opportunity/Armed Reconnaissance 2. Preplanned c. Force Protection <ul style="list-style-type: none"> 1. Airbase Defense 2. Facilities Defense 3. Fighter Escort 4. Dual Target Attack (DTA)
58	2	Threat/Countermeasures
59	2	Tactical Recovery (SCA, overhead, downwind, random shallow/steep)
60	1	Air-to-Air Refueling <ul style="list-style-type: none"> a. Procedures b. Rendezvous c. Closure d. Contact/Fuel Transfer e. Breakaway f. Right Seat Refueling (Copilot, Instructor, Evaluator)
61-99		Reserved for future use
Notes: <ul style="list-style-type: none"> 1. Required in-flight 2. Required in-flight or simulator certified for this event 3. In-flight or alternate method 4. Aircraft commanders/instructors only 5. Copilots perform copilot duties only 		

Table 4.3. General Criteria.

Q	Altitude	± 200 feet
	Airspeed	+10/-5 knots (but not less than Minimum Control Airspeed)
	Course	± 5 degrees/3 nautical miles (nm) (whichever is greater)
	Arc	± 2 nm
Q-	Altitude	± 300 feet
	Airspeed	+15/-10 knots (but not less than Minimum Control Airspeed)
	Course	± 10 degrees/5 nm (whichever is greater)
	Arc	± 3 nm
U		Exceeded Q- limits

4.7.3.1. Area 30. Ground Operations/Taxi.

4.7.3.1.1. **Q.** Established and adhered to station, start engine, taxi, and takeoff times to assure thorough preflight, check of personal equipment, crew/passenger briefings, etc. Accurately determined readiness of aircraft for flight. Performed all checks prior to takeoff.

4.7.3.1.2. **Q-.** Same as above except for minor procedural deviations that did not detract from mission effectiveness.

4.7.3.1.3. **U.** Failed to accurately determine readiness of aircraft for flight. Major deviations in procedure that would preclude safe mission accomplishment. Crew errors directly contributed to a late takeoff that degraded the mission or made it ineffective. Omitted checklist items.

4.7.3.2. Area 31. Takeoff.

4.7.3.2.1. **Q.** Maintained smooth, positive aircraft control throughout takeoff. Maintained centerline ± 15 ft. Properly applied takeoff data.

4.7.3.2.2. **Q-.** Minor deviations from published procedures, which did not affect safety of flight. Control was somewhat rough or erratic. Hesitant in application of procedures or corrections. Centerline ± 25 feet.

4.7.3.2.3. **U.** Takeoff was potentially dangerous. Exceeded aircraft/systems limitations. Failed to establish proper climb attitude. Excessive deviation from intended flight path. Exceeded Q- criteria.

4.7.3.3. Area 32. Instrument Departure.

4.7.3.3.1. **Q.** Performed departure as published/directed and complied with all restrictions or controlling agency instructions. Made all required reports. Applied course/heading corrections promptly. Demonstrated smooth, positive aircraft control.

4.7.3.3.2. **Q-.** Minor deviations in navigation occurred during departure. Slow to comply with controlling agency instructions or unsure of reporting requirements. Slow to apply course/heading corrections. Aircraft control was not consistently smooth and positive.

4.7.3.3.3. **U.** Failed to comply with published/directed departure, or controlling agency instructions. Accepted an inaccurate clearance. Aircraft control was erratic.

4.7.3.4. Area 33. Enroute Navigation.

4.7.3.4.1. **Q.** Able to navigate using all available means. Used appropriate navigation procedures. Ensured Navigational Aids (NAVAIDs) were properly tuned, identified, and monitored. Complied with clearance instructions. Aware of position at all times. Remained within the confines of assigned airspace.

4.7.3.4.2. **Q-.** Minor errors in procedures/use of navigation equipment. Some deviations in tuning, identifying, and monitoring NAVAIDs were observed. Slow to comply with clearance instructions. Had some difficulty in establishing exact position and course. Slow to adjust for deviations in time and course.

4.7.3.4.3. **U.** Major errors in procedures/use of navigation equipment. Did not ensure NAVAIDs were tuned, identified and monitored. Could not establish position. Failed to recognize checkpoints or adjust for deviations in time and course. Did not remain within the confines of assigned airspace. Exceeded Q- criteria.

4.7.3.5. Area 34. Descent/Arrival Procedures.

4.7.3.5.1. **Q.** Performed descent as directed. Complied with all restrictions. Properly set altimeters and ensured NAVAIDs were properly set.

4.7.3.5.2. **Q-.** Performed descent as directed with minor deviations that did not compromise mission safety. Slow to comply with controller instructions, set proper altimeter setting. Delayed in ensuring NAVAIDs were properly set. Slow to make corrections.

4.7.3.5.3. **U.** Performed descent with major deviations. Failed to follow controller instructions. Failed to ensure NAVAIDs or altimeters were properly set. Erratic corrections were observed.

4.7.3.6. Area 35. Holding/Procedure Turn.

4.7.3.6.1. **Q.** Performed entry and holding in accordance with published procedures. Ensured NAVAIDs were set properly. Holding pattern limits exceeded by not more than:

4.7.3.6.1.1. Very High Frequency (VHF) Omni-directional Radio-range (VOR)
Leg timing: ± 15 seconds

4.7.3.6.1.2. Tactical Air Navigation (TACAN): ± 1.5 nm

4.7.3.6.2. **Q-.** Performed entry and holding procedures with minor deviations. Delayed in ensuring NAVAIDs set properly. Holding pattern limit exceeded by not more than:

4.7.3.6.2.1. VOR Leg timing: ± 30 seconds.

4.7.3.6.2.2. TACAN: ± 2 nm.

4.7.3.6.3. **U.** Holding not in accordance with technical orders (TOs), directives, or published procedures. Failed to ensure NAVAIDs set properly. Exceeded “Q-“holding pattern limits.

4.7.3.7. Area 36. Precision Approach.

4.7.3.7.1. Precision Approach Radar (PAR).

4.7.3.7.1.1. **Q.** Approach was IAW published procedures. Smooth and timely response to controller's instructions. Complied with decision height. Position would have permitted a safe landing. Maintained glide path with only minor deviations.

4.7.3.7.1.1.1. Airspeed: +10/-5 knots.

4.7.3.7.1.1.2. Heading: Within 5 degrees of controller instructions.

4.7.3.7.1.2. **Q-.** Performed approach with minor deviations. Slow to make corrections or react to controller's instructions. Position permitted a safe landing. Improper glide path control. Initiated missed approach as directed or at decision height +50/-0 feet, if applicable.

4.7.3.7.1.2.1. Airspeed: +15/-5 knots.

4.7.3.7.1.2.2. Heading: Within 10 degrees of controller's instructions.

4.7.3.7.1.3. **U.** Approach not IAW TOs, directives or published procedures. Erratic corrections or did not react to controller's instructions. Did not comply with decision height and/or position would not have permitted a safe landing. Exceeded “Q-“limits.

4.7.3.7.2. Instrument Landing System Approach.

4.7.3.7.2.1. **Q.** Performed procedures as published and IAW applicable directives. Smooth and timely corrections to azimuth and glide slope. Complied with decision height and position permitted a safe landing.

4.7.3.7.2.1.1. Airspeed: +10/-5 Knots Indicated Air Speed (KIAS).

4.7.3.7.2.1.2. Glide slope/azimuth within one dot.

4.7.3.7.2.2. **Q-.** Performed procedures with minor deviations. Slow to make corrections or initiate procedures. Position would have permitted a safe landing. Initiated missed approach at decision height +50/-0 feet, if applicable.

4.7.3.7.2.2.1. Airspeed: +15/-5 KIAS.

4.7.3.7.2.2.2. Glide slope within one-dot low/two dots high.

4.7.3.7.2.2.3. Azimuth within one dot.

4.7.3.7.2.3. **U.** Performed procedures with major deviations. Erratic course/glide slope corrections. Did not comply with decision height or position would not have permitted a safe landing. Exceeded “Q-“ criteria.

4.7.3.8. Area 37. Non-Precision Approach.

4.7.3.8.1. **Q.** Approach was IAW published procedures. Used appropriate descent rate to arrive at Minimum Decision Altitude (MDA) at or before Visual Descent Point (VDP). Position permitted a safe landing. Smooth and timely response to Airport Surveillance Radar (ASR) controller's instructions.

4.7.3.8.1.1. Airspeed: +10/-5 knots.

4.7.3.8.1.2. Heading: ± 5 degrees (ASR).

4.7.3.8.1.3. Course: ± 5 degrees at Missed Approach Point (MAP).

4.7.3.8.1.4. Localizer: Less than one dot deflection.

4.7.3.8.1.5. MDA: +100/-0 feet.

4.7.3.8.2. **Q-.** Performed approach with minor deviations. Arrived at MDA at or before the MAP, but past the VDP. Initiated missed approach/go-around as directed or appropriate. Slow to make corrections or react to ASR controller's instruction.

4.7.3.8.2.1. Airspeed: +15/-5 knots.

4.7.3.8.2.2. Heading: ± 10 degrees (ASR).

4.7.3.8.2.3. Course: ± 10 degrees at MAP.

4.7.3.8.2.4. Localizer: Within one dot deflection.

4.7.3.8.2.5. MDA: +150/-50 feet.

4.7.3.8.3. **U.** Approach not IAW TOs, directives or procedures. Maintained steady-state flight below the MDA, even though the -50 foot limit was not exceeded. Could not land safely from approach and did not initiate missed approach/go-around when appropriate or directed. Exceeded Q- criteria. Erratic corrections or did not react to ASR controller's instructions.

4.7.3.9. **Area 38. Circling/Side-Step Approach.**

4.7.3.9.1. **Q.** Properly identified aircraft category for the approach and remained within the lateral limits for that category. Complied with controller's instructions. Attained runway alignment without excessive bank angles. Did not descend from the MDA until in a position to place the aircraft on a normal glide path or execute a normal landing.

4.7.3.9.1.1. Airspeed: +10/-5 knots.

4.7.3.9.1.2. Altitude: +100/-0 feet.

4.7.3.9.2. **Q-.** Slow to comply with controller's instructions. Attained runway alignment but occasionally required excessive bank angles or maneuvering.

4.7.3.9.2.1. Airspeed: +15/-5 knots.

4.7.3.9.2.2. Altitude: +150/-50 feet.

4.7.3.9.3. **U.** Did not properly identify aircraft category or exceeded the lateral limits of circling airspace. Did not comply with controller's instructions. Excessive maneuvering to attain runway alignment was potentially unsafe. Descended from the

MDA before the aircraft was in position for a normal glide path or landing. Exceeded "Q-" criteria.

4.7.3.10. Area 39. Engine Out Approach. Use approach criteria for the type of approach being flown and the following.

4.7.3.10.1. **Q.** Performed procedures IAW TOs and associated directives. Individual technique complied with established procedures. Proper control inputs were used to correct asymmetric condition. Aircraft was properly trimmed. Proper consideration was given to maneuvering with regard to the "dead" engine.

4.7.3.10.2. **Q-.** Minor deviations in procedures/aircraft control allowed the aircraft to occasionally be in uncoordinated flight. Unnecessary maneuvering due to minor errors in planning or judgment.

4.7.3.10.3. **U.** Major/unsafe deviations from procedures. Individual technique unsafe or in violation of established procedures. Aircraft was not properly trimmed. Aircraft control was erratic and consistently resulted in uncoordinated flight. Maneuvering with regard to the "dead" engine was potentially unsafe.

4.7.3.11. Area 40. Missed Approach/Go-Around.

4.7.3.11.1. **Q.** Executed missed approach IAW published procedures and restrictions. Initiated and performed go-around promptly. Complied with controller's instructions. Applied smooth control inputs. Attained and maintained a positive climb.

4.7.3.11.2. **Q-.** Executed missed approach with minor deviations to published procedures or directives. Was slow or hesitant to initiate go-around. Slow to respond to controller's instructions. Slightly over-controlled the aircraft.

4.7.3.11.3. **U.** Did not execute missed approach IAW TOs, directives or published procedures. Did not comply with controller's instructions. Deviations or misapplication of procedures could have led to an unsafe condition. Exceeded "Q-" criteria.

4.7.3.12. Area 41. Engine-Out Go-Around. Use Area 40 criteria and the following.

4.7.3.12.1. **Q.** Applied smooth, coordinated control inputs. Rudder and aileron inputs were in the correct direction. Maneuvering appropriate with regard to the "dead" engine / Minimum Control Airspeed (VMCA). Individual technique complied with established procedures.

4.7.3.12.2. **Q-.** Rudder and aileron inputs were in correct direction but some over/under control. Individual techniques were safe, but detracted from the maneuver.

4.7.3.12.3. **U.** Rudder and/or aileron inputs were incorrect. Maneuvering with regard to the "dead" engine / VMCA potentially unsafe. Failed to comply with or consider VMCA. Individual technique unsafe or violated established procedures.

4.7.3.13. Area 42. Visual Flight Rules Procedures/Patterns.

4.7.3.13.1. **Q.** Adhered to published restrictions/local guidance. Performed traffic pattern and turn to final/final approach IAW TO procedures. Aircraft control was smooth and positive. Did not over/under-shoot final approach. Constantly cleared area of intended flight.

4.7.3.13.1.1. Airspeed: +10/-5 knots.

4.7.3.13.1.2. Pattern Altitude: \pm 100 feet.

4.7.3.13.2. **Q-.** Minor deviations from published restrictions/local guidance. Performed traffic pattern and turn to final/final approach with minor deviations to procedures. Aircraft control was safe but not consistently smooth and positive. Over/under-shot final approach slightly but was able to intercept a normal glide path. Adequately cleared area of intended flight.

4.7.3.13.2.1. Airspeed: +15/-5 knots.

4.7.3.13.2.2. Pattern Altitude: \pm 200 feet.

4.7.3.13.3. **U.** Major/unsafe deviations from published restrictions/local guidance. Did not perform traffic pattern and turn to final/final approach IAW TOs, directives or published procedures. Displayed erratic aircraft control. Over/under-shot final approach by a wide margin requiring a go-around or potentially unsafe maneuvering on final. Did not clear area of intended flight. Exceeded “Q-“ criteria.

4.7.3.14. **Area 43. Final Approach and Landing.** The following criteria are written to generally apply to all landings. Flight examiners must apply these criteria judiciously to allow for the unique characteristics of each type of landing. Where runway/airfield lighting configuration, arresting cable placement, instrument procedures or TO limitations require an adjustment to the desired touchdown point, a simulated runway threshold will be identified and the grading criteria applied accordingly. For instrument approaches, the examinee should utilize a normal glide slope from either the decision height or from a point where visual acquisition of the runway environment is made. (T-2)

4.7.3.14.1. **Area 43a. 100/50 Percent Flap Landing.**

4.7.3.14.1.1. **Q.** Performed landing as published/directed. Crossed threshold at threshold speed \pm 5 knots at proper attitude. Smooth and positive aircraft control throughout round-out and flare. Touched down with no crab, and not more than 15 feet left or right of centerline. Complied with TO procedures for use of brakes and reverse thrust. Met the following criteria:

4.7.3.14.1.1.1. Touchdown Speed: \pm 5 knots.

4.7.3.14.1.1.2. Touchdown Point: 1,000' – 2,000' from the actual/simulated runway threshold.

4.7.3.14.1.2. **Q-.** Performed landing with minor deviations to procedures as published/directed. Crossed threshold at threshold speed +10/-5 knots slightly high or low but no compromise of safety. Touched down not more than 25 feet left or right of centerline. Exceeded “Q” criteria but not the following:

4.7.3.14.1.2.1. Touchdown Speed: +10/-5 knots.

4.7.3.14.1.2.2. Touchdown Point: 0' – 1,000' or 2,001' – 3,000' from the actual/simulated runway threshold.

4.7.3.14.1.3. **U.** Landing not performed as published/directed. Crossed threshold excessively high or low and more than +10/-5 knots. Touched down excessively crabbed and more than 25 feet left or right of centerline. Failed to comply with TO procedures for the use of brakes and reverse thrust. Exceeded “Q-“ criteria.

4.7.3.14.2. **Area 43b. 50 Percent Flap Landing.** Use **Area 43a**, 100/50 Percent Flap Landing criteria.

4.7.3.14.3. **Area 43c. No Flap Landing.** Use **Area 43a**, 100/50 Percent Flap Landing criteria.

4.7.3.14.4. **Area 43d. Engine-Out Landing.** Use **Area 43a**, 100/50 Percent Flap Landing criteria.

4.7.3.14.5. **Area 43e. Touch-and-Go Landing (Touchdown through Lift-off).**

4.7.3.14.5.1. **Q.** Performed procedures in a timely manner and IAW TOs and local directives. Smooth and positive control. Maintained runway centerline within 15 feet left or right throughout the touch-and-go.

4.7.3.14.5.2. **Q-.** Performed procedures with minor deviations. Aircraft control was safe, but not consistently smooth and positive. Delayed accomplishment of required checklists. Consistently left or right of centerline but within 25 feet.

4.7.3.14.5.3. **U.** Major deviations to procedures. Displayed erratic/unsafe aircraft control. Excessively delayed and/or misapplied required checklists. Allowed aircraft to drift/remain more than 25 feet left or right of centerline.

4.7.3.15. **Area 44. After Landing/Engine Shutdown.**

4.7.3.15.1. **Q.** Configured the aircraft IAW TOs and instructions. Accomplished checklist without omitting required steps or prerequisites.

4.7.3.15.2. **Q-.** Same as above except minor procedural deviations that did not detract from mission effectiveness.

4.7.3.15.3. **U.** Failed to configure the aircraft IAW TOs and instructions. Major deviations in written procedures. Crew errors directly contributed to degrading the mission or making it ineffective. Omitted required checklist items.

4.7.3.16. **Area 45. Fuel Conservation.**

4.7.3.16.1. **Q.** Possessed a high level of knowledge of all applicable aircraft publications and other governing directives and understood how to apply both to enhance fuel conservation. Successfully applied fuel conservation procedures during the mission.

4.7.3.16.2. **Q-.** Possessed some knowledge of applicable aircraft publications and other governing directives and understood how to apply both to enhance fuel conservation. Successfully applied some fuel conservation procedures, but missed several opportunities to apply fuel conservation procedures during the mission.

4.7.3.16.3. **U.** Unaware of fuel conservation procedures. Failed to apply any fuel conservation procedures during the mission.

4.7.3.17. Areas 46 through 49. Reserved for future use.

4.7.3.18. Area 50. Sensor Alignment.

4.7.3.18.1. **Q.** Coordinated with the Fire Control Officer (FCO) to successfully align the sensors IAW TOs and instructions. Correctly identified a common alignment point.

4.7.3.18.2. **Q-.** Minor errors in procedures, readings or inputs that delayed completion, or resulted in minor inaccuracies of the sensor alignment. Errors did not delay timing for mission events (range times, Times on Target (TOTs), Rendezvous Control Time (RVCT)).

4.7.3.18.3. **U.** Unable to follow sensor alignment procedures to complete alignment. Failed to identify a common alignment point. Inputted erroneous data that exceeded “Q-“ criteria.

4.7.3.19. Area 51. Pre-Strike.

4.7.3.19.1. **Q.** Configured the aircraft for combat and completed all required checklists prior to crossing the combat-entry point IAW TOs and instructions.

4.7.3.19.2. **Q-.** Aircraft configuration or checklist completion caused minor delays to mission accomplishment.

4.7.3.19.3. **U.** Failed to configure and/or accomplish required checklist prior to attempting munitions delivery.

4.7.3.20. Area 52. Tweak Procedures.

4.7.3.20.1. **Q.** Coordinated with the crew to safely align the sensors/weapons for accurate weapons delivery IAW TOs and applicable instructions. Accurate, stable geometry allowed best tweak for conditions.

4.7.3.20.2. **Q-.** Minor deviations from procedures or geometry, which did not cause an unsafe condition or an unusable tweak.

4.7.3.20.3. **U.** Unsatisfactory knowledge or performance of tweak. Erratic aircraft control or deviations from TOs/instructions resulted in a potentially unsafe condition or an unusable tweak.

4.7.3.21. Area 53. Geometry Analysis.

4.7.3.21.1. **Q.** Understood and made appropriate corrections to the variables affecting geometry as listed in TOs and AFIs.

4.7.3.21.2. **Q-.** Minor deviations with no impact on mission.

4.7.3.21.3. **U.** Improper corrections caused major deviations/delays to mission accomplishment.

4.7.3.22. Area 54. Target Acquisition (Except Copilot).

- 4.7.3.22.1. **Q.** Coordinated with tactical crew to acquire the correct target/friendly position IAW TOs, AFIs, and Rules of Engagement (ROE).
- 4.7.3.22.2. **Q-.** Had minor difficulty accurately identifying targets and or unsure of aircraft position based on targets. Made minor errors that did not affect target acquisition.
- 4.7.3.22.3. **U.** For the conditions listed in “Q” criteria, pilot’s crew coordination or lack of coordination contributed, or resulted in, inability to acquire target.
- 4.7.3.23. **Area 55. Gunnery (Except Copilot).** Grading criteria are based on aircraft altitude 6,000-9,000 feet above ground level in non-mountainous terrain, no turbulence, stationary target with stable sensor track, and wind speed less than 15 knots.
- 4.7.3.23.1. **Q.** Demonstrated proficiency in Auto-Fixed (AC-130H) or Fixed (AC-130U), and one other mode of fire IAW TOs and AFIs.
- 4.7.3.23.2. **Q-.** Demonstrated proficiency in Auto-fixed (AC-130H) or Fixed (AC-130U), and one other mode of fire IAW TOs and AFIs with minor deviations.
- 4.7.3.23.3. **U.** Major deviations exceeding “Q-“ criteria or unable to accomplish gunfire due to proficiency reasons.
- 4.7.3.24. **Area 56. Throttle Control (Copilot).**
- 4.7.3.24.1. **Q.** Maintained nominal airspeed ± 3 knots and altitude ± 100 feet.
- 4.7.3.24.2. **Q-.** Maintained nominal airspeed ± 5 knots and altitude, ± 200 feet.
- 4.7.3.24.3. **U.** Exceeded “Q-“ criteria.
- 4.7.3.25. **Area 57. Employment Tactics.**
- 4.7.3.25.1. **Q.** Able to reference appropriate publications, manuals, TOs, AFIs, Order of Battle, ROE, Special Instructions, Joint Technical Coordinating Group for Munitions Effectiveness (JTTCG/ME), and Air Tasking Order (ATO). Able to coordinate with Liaison Officers (LNOs). Developed a comprehensive offensive employment plan and applied it in the aircraft.
- 4.7.3.25.2. **Q-.** Minor deviations from “Q” criteria that did not impair mission accomplishment.
- 4.7.3.25.3. **U.** Major deviations that lead to impairment of mission accomplishment.
- 4.7.3.26. **Area 58. Threat/Countermeasures.**
- 4.7.3.26.1. **Q.** Demonstrated satisfactory knowledge of defensive systems and thorough knowledge of tactics applicable to the mission. Applied appropriate tactics to avoid the threat and minimize exposure. Made timely and appropriate inputs to crew during mission.
- 4.7.3.26.2. **Q-.** Limited knowledge of defensive systems. Made minor errors in avoiding the lethal range of a given threat system. Slow to execute the proper evasive maneuver. Minor errors in threat analysis or tactics selection. Did not make timely inputs to crew during mission.

4.7.3.26.3. **U.** Knowledge of defensive systems was unsatisfactory. Did not avoid lethal range of given threat system. Did not execute an effective evasive maneuver when given an immediate threat. Failed to ensure mission effectiveness by not adequately analyzing or degrading threat(s). Not aware of appropriate tactics for specific threats or terrain.

4.7.3.27. Area 59. Tactical Recovery.

4.7.3.27.1. **Q.** Followed procedures as briefed and IAW TOs, directives, or published procedures. Displayed smooth, positive control throughout the recovery. Aircraft was in position to intercept glide path for normal landing. Gave proper consideration to threat location and adjusted pattern accordingly. Consistently cleared area of intended flight.

4.7.3.27.2. **Q-.** Performed recovery with minor deviations to published procedures. Aircraft control was not consistently positive and smooth. Over/under-shot final approach slightly but was able to intercept glide path for normal landing.

4.7.3.27.3. **U.** Recovery not performed IAW TOs, directives or published procedures. Displayed erratic aircraft control. Over/under-shot final approach, requiring a go-around or potentially unsafe maneuvering to intercept final. Failed to consider threat location or proximity and/or maneuvering could have placed the aircraft within lethal range of given threat system. Did not clear area of intended flight.

4.7.3.28. Area 60. Air-to-Air Refueling Procedures.

4.7.3.28.1. **Q.** Effectively accomplished rendezvous using proper procedures. Demonstrated effective/appropriate use of radio communications for briefed Emission Control option. Expeditiously established and maintained proper position. Aircraft control was positive and smooth. Maintained the contact position for 10 minutes (at least 5 minutes continuous) with no more than two pilot-induced disconnects.

4.7.3.28.2. **Q-.** Rendezvous delayed by improper techniques, procedures or radio communications. Slow to recognize and apply needed corrections to establish and maintain proper position. Aircraft control was not always positive and smooth, but adequate. Accomplished published/directed procedures with deviations or omissions that did not affect the successful completion of air refueling. Maintained the contact position for at least 10 minutes with no more than two pilot-induced disconnects.

4.7.3.28.3. **U.** Displayed lack of knowledge or familiarity with procedures to the extent that air refueling was or could have been jeopardized. Failed rendezvous as a result of improper procedures. Spent excessive time in trail. Aircraft control in the pre-contact/refueling position was erratic or unsafe. Made deviations or omissions that affected flight safety and/or the successful completion of the air refueling. Used unacceptable procedures. Performance caused more than two pilot-induced disconnects and/or delayed mission accomplishment.

4.7.3.29. Areas 61 through 99. Reserved for future use.

Chapter 5

NAVIGATOR EVALUATIONS

5.1. General. Mission qualified Navigators require QUAL and MSN evaluations. Examinees must satisfactorily demonstrate the ability to perform all navigator duties safely and effectively, including the operation of appropriate aircraft systems, IAW applicable TOs and directives. (T2)

5.2. Requirements. Refer to [Chapter 2](#) for all evaluations. Instructors will demonstrate instructional ability on all periodic evaluations; refer to [Chapter 3](#) for instructor evaluation grading areas and criteria. Navigator specific areas are listed in this chapter. (T-2)

5.3. Requisites. Requisites for all navigator evaluations include Open and Closed book examinations (or formal school end-of-course examinations if applicable), BOLDFACE examination, and EPE. The various navigator evaluations are described in following paragraphs.

5.3.1. Qualification Evaluations. After completion of the appropriate training, navigators may receive a QUAL evaluation enabling them to fly non-mission sorties. Thereafter, they require, at a minimum, recurring QUAL evaluations. See grading event criteria in [Chapter 2](#), [Chapter 3](#), and [Table 5.1](#), Notes 4 and 5 for required QUAL evaluation areas. (T-2)

5.3.1.1. AC-130H navigators require a QUAL evaluation in any C-130-series aircraft or certified ATD prior to the initial AC-130 mission evaluation. AC-130U navigators require a QUAL evaluation either in the AC-130U aircraft or WST prior to the initial AC-130 mission evaluation. Navigators transitioning from another AC-130 series may receive a combined QUAL/MSN evaluation in their new MDS. (T-2)

5.3.2. Initial/Re-qualification Mission Evaluation. Conduct INIT or RQ MSN evaluations on missions consisting of both live and dry fire missions. Comply with formal school course guidance if available. TOT criterion is to a point tangent to the orbit or as predetermined by the evaluator. See grading event criteria in [Chapter 2](#), [Chapter 3](#), and [Table 5.1](#). A QUAL evaluation may be conducted in conjunction with the INIT or RQ MSN evaluation. (T-2)

5.3.2.1. For INIT or RQ MSN evaluations, AC-130U navigators require live offset, a dry fire profile, and TOT in addition to the periodic requirements listed below. (T-2)

5.3.3. Periodic Qualification/Mission Evaluation. Conduct the QUAL/MSN evaluation in the eligibility period corresponding to the earliest expiration date. QUAL/MSN evaluations will include required areas in [Chapter 2](#), [Chapter 3](#) (if applicable), and [Table 5.1](#). (T-2)

5.3.3.1. For AC-130H, a live fire is desired, but not required. Verbally evaluate live fire procedures if not accomplished in-flight. TOT criterion is to a point tangent to the orbit or as predetermined by the evaluator. (T-2)

5.3.3.2. For AC-130U, navigators require, at a minimum, live fire procedures using the Radar as a sensor and demonstrating combat tweak (or two-shot procedures), calls-for-fire (using either peacetime or combat distances and procedures), and fuel management. TOT is desired. (T-2)

5.3.4. AC-130 Dual Qualified Nav/FCO Mission Evaluations. See Nav/FCO Dual Qual requirements in [Chapter 6](#).

5.3.5. Special Qualification Evaluations. Not applicable.

Table 5.1. Navigator Grading Areas.

Area	Notes	Area Name
100	2, 4	Departure
101	2, 4	Approach/Landing
102	3, 4	Flight Plan/Charts
103	3, 4	Fuel Planning
104	3, 4	Navigation Procedures
105	3, 4	Radio Navigation
106	3, 4	Radar Navigation/Weather Avoidance
107	3, 4	Navigation and Avionics Systems
108	3, 4	Deviation/True Airspeed (TAS)
109	3, 4	Dead Reckoning (DR)/Rating of Navigational Computers
110	3, 4	Course and Estimated Time of Arrival (ETA) Tolerance
111	3, 4	Fuel Management
112	3, 5	Air-to-Air Refueling Procedures
113	3	Briefings
114	3	Defensive Systems/Tactics/Threat Analysis/Avoidance
115	3	Sensor Alignment
116	3	Fire Control Systems and Displays/Sensor Systems/Weapons Systems
117	3	Local Range/Aerodrome Procedures and Restrictions
118	3	Employment Tactics
119	2	Communication Procedures/Radio Transmission – Usage and Discipline
120	3	Target Acquisition/Confirmation
121	2	Time on Target
122	3	Dual Target Attack
123	2	Strike Radar Procedures (AC-130U)
124	3	Degraded Procedures
125	3, 5	Self-Contained Approach (SCA) Procedures
126-149		Reserved for future use

Notes:

1. Required in-flight.
2. Required in-flight or simulator certified for this event.
3. Required in-flight or alternate method.
4. Required for QUAL portion of flight evaluations.
5. Required on or before INIT or RQ MSN evaluation, and for recurring evaluations.

5.4. Grading Criteria.

5.4.1. **Areas 1 through 19:** Use general grading criteria in [Chapter 2](#) of this volume.

5.4.2. **Areas 20 through 29:** Use instructor evaluation grading criteria in [Chapter 3](#) of this volume (if applicable).

5.4.3. **Areas 100 through 149:** The following subparagraphs contain the evaluation criteria for the areas listed in **Table 5.1**.

5.4.3.1. Area 100 Departure (QUAL).

5.4.3.1.1. **Q.** Monitored headings, airspeeds, altitudes and aircraft position throughout departure. Used an instrument departure procedure and/or appropriate scale departure area chart. Provided headings, estimated time of arrival (ETA), and other required information in a timely manner. Monitored appropriate radios and clearances to ensure crew compliance. Provided updated information when the clearance caused a change in the planned departure. Ensured terrain clearance during departure by use of all available aids and the area chart.

5.4.3.1.2. **Q-.** Monitored aircraft position, but slow to provide headings, ETA, or other required information. Performance did not degrade mission accomplishment or compromise flight safety.

5.4.3.1.3. **U.** Did not monitor departure headings, airspeeds or altitudes. Unaware of aircraft position and unable to provide updated information when required. Did not use an instrument departure procedure and/or an appropriate scale departure area chart. Allowed major deviations that degraded mission accomplishment or compromised safety. Did not ensure terrain clearance during the departure. No area chart available.

5.4.3.2. Area 101. Approach/Landing (QUAL).

5.4.3.2.1. **Q.** Monitored aircraft position, approach instructions and primary approach navigation aids. Furnished headings, ETAs and other information to the pilot as required. Thoroughly understood approach and missed approach procedures. Ensured terrain clearance during approach by use of all available aids and area chart.

5.4.3.2.2. **Q-.** Monitored aircraft position but did not fully understand approach instructions/procedures. Slow to provide headings, ETAs or other appropriate information.

5.4.3.2.3. **U.** Failed to monitor aircraft position. Did not ensure terrain clearance during the approach. Did not use appropriate chart.

5.4.3.3. Area 102. Flight Plan/Charts (QUAL).

5.4.3.3.1. **Q.** Completed a flight plan in its entirety with time errors not exceeding 3 minutes of total time to destination, or satisfactorily demonstrated manual flight planning procedures at the discretion of the evaluator. Selected current navigation charts of a proper scale and type of the sortie profile. Charts were constructed IAW current directives. Plotting errors did not exceed 3 nm. Demonstrated proper manual flight planning procedures, if required.

5.4.3.3.2. **Q-.** Minor errors or omissions that would not have adversely affected mission accomplishment. Time errors did not exceed 5 minutes. Plotting errors did not exceed 5 nm.

5.4.3.3.3. **U.** Flight Plan was not completed. Could not demonstrate manual procedures, or failed to review computer flight plan. Navigator flight plan contained major errors/omissions. Selected an improper or obsolete chart. Exceeded Q-criteria.

5.4.3.4. Area 103. Fuel Planning (QUAL).

5.4.3.4.1. **Q.** Demonstrated satisfactory knowledge of the type and use of data contained in fuel planning instructions AFI 11-2AC-130, Vol 3, *AC-130 Operations Procedures*, Chapter 11. "Enroute fuel" computation errors did not exceed 3%. Correctly computed and performed fuel management procedures. Correctly computed an Equal Time Point (ETP), when required. Manual fuel planning procedures were demonstrated at the discretion of the evaluator.

5.4.3.4.2. **Q-.** Displayed limited knowledge of fuel planning instructions. "Enroute fuel" computation errors did not exceed 5%. Fuel management procedures and/or ETP computed with minor mathematical errors or omissions that would not adversely affect mission accomplishment.

5.4.3.4.3. **U.** Displayed inadequate knowledge of fuel planning instructions. Fuel computations and/or ETP were not completed or contained major errors or omissions. Exceeded "Q-" criteria.

5.4.3.5. Area 104. Navigation Procedures (QUAL).

5.4.3.5.1. **Q.** Certain of exact aircraft position. Remained within 3 nm of course centerline or planned deviation (Exceptions: Threat avoidance, weather deviation, Air Traffic Control assigned heading, time control, etc.). Thorough knowledge of enroute time status in relation to objective area. Complied with all altitude restrictions. Adhered to all airspace restrictions.

5.4.3.5.2. **Q-.** Uncertain of exact aircraft position due to marginal navigational procedures. Flew 3 to 5 nm from course without the above exceptions. Better awareness of required timing events or enroute time status could have avoided excessive, unplanned maneuvering.

5.4.3.5.3. **U.** Exceeded 5 nm during enroute navigation without the above exceptions. Was unable to maintain position awareness throughout most of the route. Unable to accurately assess required timing or unaware of mission time status, jeopardizing mission accomplishment. Violated airspace restrictions. Poor airspeed control resulted in numerous or extreme airspeed adjustment. Descended below minimum altitude restrictions.

5.4.3.6. Area 105. Radio Navigation (QUAL).

5.4.3.6.1. **Q.** Accurately tuned, identified, and interpreted readings of TACANs, VORs or Non-directional Beacons (NDBs). Consistently selected stations that afforded the best Lines of Position. Position accuracy within 4 nm.

5.4.3.6.2. **Q-.** Better use of radio aids could have enhanced navigation. Displayed weakness in fixing or plotting procedures. Position accuracy did not exceed 8 nm.

5.4.3.6.3. **U.** Unable to accurately tune and identify radio aids. Did not understand VOR/TACAN/NDB bearing procedures or was unable to obtain position by means of radio aids. Position error greater than 8 nm.

5.4.3.7. Area 106. Radar Navigation/Weather Avoidance (QUAL).

5.4.3.7.1. **Q.** Demonstrated thorough knowledge and understanding of radar equipment. Used correct procedures for radar operation and weather avoidance procedures. Radar Fix position error did not exceed 5 nm (if observed). Maintained proper distance from adverse weather.

5.4.3.7.2. **Q-.** Demonstrated adequate knowledge of equipment, but occasionally used improper operating procedures. Did not update radar/weather analysis while avoiding known weather. Had difficulty identifying radar returns. Radar fix position error did not exceed 10 nm (if observed). Weather avoidance was safe with minor deviation from prescribed procedures.

5.4.3.7.3. **U.** Displayed unsatisfactory knowledge of radar equipment. Used improper operating procedures that were potentially harmful to system components. Failed to correctly interpret scope returns. Displayed unsatisfactory knowledge of weather avoidance procedures. Radar fix position error greater than 10 nm (if observed).

5.4.3.8. Area 107. Navigation and Avionics Systems (QUAL). All references to navigation systems refer to actual systems onboard unit aircraft, including, but not limited to Inertial Navigation System (INS), Mission Computers, Self-Contained Navigation System (SCNS), Doppler or Global Positioning System (GPS). References to avionics include data buses, multifunction displays, control display units, data transfer systems, digital generating units, bus interfaces, and associated systems.

5.4.3.8.1. **Q.** Had a thorough knowledge of onboard navigation system operating procedures. Effectively used navigation systems to direct the aircraft and update system as required. Operated avionics systems correctly.

5.4.3.8.2. **Q-.** Had only a basic knowledge of onboard navigation systems and/or avionics systems. Made minor errors in operation/interpretation of navigation system data and/or avionics systems data. More selective updating could have increased system effectiveness.

5.4.3.8.3. **U.** Displayed inadequate knowledge of onboard navigation systems and/or avionics systems procedures. Improper procedures could have resulted in damage to equipment or affected mission accomplishment. Failed to update or correctly interpret navigation system data.

5.4.3.9. Area 108. Deviation/True Airspeed Check (QUAL).

5.4.3.9.1. **Q.** Correctly computed compass deviation within 2 degrees of actual. TAS check accomplished on time and error did not exceed 5 knots.

5.4.3.9.2. **Q-.** Minor errors in readings or computations. Computations were within 3 degrees of actual. Minor errors in readings or computations. Error did not exceed 10 knots. Completed TAS check late.

5.4.3.9.3. **U.** Did not accomplish deviation check or exceeded "Q-" criteria. Did not accomplish TAS check or error exceeded 10 knots.

5.4.3.10. Area 109. Dead Reckoning/Rating of Navigational Computers (QUAL).

5.4.3.10.1. **Q.** Made effective use of DR/Rating of navigational computers during aircraft positioning. Computed or plotted positions within 5 nm, selecting the most reliable information.

5.4.3.10.2. **Q-.** Occasionally did not identify the navigational computer providing the most reliable information or used improper DR procedures resulting in erroneous ETAs or headings. Computed or plotted position error did not exceed 10 nm.

5.4.3.10.3. **U.** Was unable to use DR/Rate navigational computers effectively. Computed or plotted position error exceeded “Q-“ criteria.

5.4.3.11. Area 110. Course and Estimated Time of Arrival Tolerance (QUAL).

5.4.3.11.1. **Q.** Remained within 10 nm of course centerline, or within tolerances specified for Required Navigation Performance (RNP) airspace (if applicable), whichever is less. ETAs/Revised ETAs (RETAs) were within 2 minutes of actual times of arrival (ATAs). Accurately determined course deviation for weather.

5.4.3.11.2. **Q-.** Remained within 15 nm of course centerline, or within tolerances specified for RNP airspace (if applicable), whichever is less. ETAs/RETAs were within 3 minutes of ATAs.

5.4.3.11.3. **U.** Exceeded “Q-“ criteria and/or evaluator had to alter aircraft heading to remain within course tolerance, clear special use airspace, or correctly deviate around weather.

5.4.3.12. Area 111. Fuel Management (QUAL).

5.4.3.12.1. **Q.** Properly managed fuel. Kept pilot advised and monitored fuel status.

5.4.3.12.2. **Q-.** Adequate fuel management with minor computation errors noted. Did not adequately update the pilot on fuel status.

5.4.3.12.3. **U.** Failed to demonstrate an understanding of fuel management procedures. Fuel computations not accomplished or contained significant errors. Failed to inform or monitor pilot of fuel status.

5.4.3.13. Area 112. Air-to-Air Refueling Procedures (QUAL).

5.4.3.13.1. **Q.** Effectively accomplished rendezvous and air refueling procedures. Planned optimum use of all available rendezvous aids. Thorough and complete knowledge of in-flight air refueling procedures. Arrived at the coordinated air refueling point within 1 minute of planned control time. Properly calculated bingo fuel to the planned abort base.

5.4.3.13.2. **Q-.** Overlooked use of some rendezvous aids, resulting in a delayed or inefficient rendezvous. Knowledge was sufficient to accomplish rendezvous and air refueling. Arrived at the coordinated air refueling point within 3 minutes of planned control time. Made minor miscalculations of bingo fuel to the planned abort base.

5.4.3.13.3. **U.** Displayed lack of knowledge or familiarity with the checklist, equipment, and procedures. Limited use of rendezvous aids adversely affected the rendezvous. Arrived at the coordinated air refueling point in excess of 3 minutes from planned control time. Selected an inappropriate abort base or failed to calculate

a bingo fuel to arrive at an abort base with required fuel. Failed to position the aircraft within the boundaries of the designated refueling track.

5.4.3.14. Area 113. Briefings (MSN).

5.4.3.14.1. **Q.** Gave complete, concise mission briefings IAW AFI 11-2AC-130, Vol 3, Attachment 3 and 4. Performed thorough and concise briefs in-flight for pre-strike checklists and applicable mission changes.

5.4.3.14.2. **Q-.** Minor errors and omissions of briefing items that did not adversely affect mission accomplishment.

5.4.3.14.3. **U.** Major errors or omissions in briefing that resulted in loss of crew situational awareness and performance that had a major negative effect on mission accomplishment.

5.4.3.15. Area 114. Defensive Systems/Tactics/Threat Analysis/Avoidance (MSN).

5.4.3.15.1. **Q.** Had thorough knowledge of necessary defensive systems/tactics applicable to the mission. Applied appropriate tactics to avoid the threat and minimize exposure. Made timely and appropriate inputs to crew during mission. Able to plot threats in flight, and formulate a plan of action to avoid a given threat. Adequately analyzed and degraded all threats ensuring effective mission accomplishment. Aware of appropriate tactics to avoid threats and exposure.

5.4.3.15.2. **Q-.** Limited knowledge of defensive systems. Minor errors in tactics selection. Was unfamiliar with the appropriate tactic for a given scenario. Did not make timely inputs to crew during mission. Made minor errors in plotting and avoiding a given threat. Minor errors in threat analysis or tactics selection.

5.4.3.15.3. **U.** Knowledge of defensive systems was unsatisfactory. Inputs were missing or inaccurate. Major errors in tactics selection would have resulted in an unsuccessful mission. Unable to plot and avoid a given threat. Failed to ensure mission effectiveness by not adequately analyzing or degrading threat(s). Not aware of appropriate tactics for specific threats or terrain.

5.4.3.16. Area 115. Sensor Alignment (MSN).

5.4.3.16.1. **Q.** Thorough understanding of sensor alignment procedures. Monitored all checklist procedures and ensured alignment procedures were accomplished correctly.

5.4.3.16.2. **Q-.** Adequate knowledge of sensor alignment procedures. Minor errors of oversight or procedures that did not adversely affect systems required for mission accomplishment.

5.4.3.16.3. **U.** Unfamiliar with sensor alignment procedures. Unable to recognize major errors or omissions in the sensor alignment. Failed to monitor the alignment.

5.4.3.17. Area 116. Fire Control Systems and Displays/Sensor Systems/Weapons Systems (MSN). All references to 'fire control systems' refer to actual systems onboard unit aircraft (i.e., Mission Computer, INS/GPS, Multi-Functional displays/symbology, Fire Control Display). 'Sensor Systems' refers to infrared and/or electro-optical systems. 'Weapons systems' refers to 105mm, 40mm and 25mm guns on applicable aircraft.

5.4.3.17.1. **Q.** Had a thorough knowledge of onboard Fire Control Systems/Sensor Systems/Weapons systems. Effectively used all systems to direct weapons delivery/navigation and update systems as required. Effectively interpreted sensor data/marketing devices. Understood how each component incorporated within the Fire Control System. **(AC-130U):** Correctly monitored gun cooling times as described in associated TOs.

5.4.3.17.2. **Q-.** Had only a basic knowledge of onboard Fire Control Systems/Sensor Systems/Weapons Systems. Made minor errors operation/interpretation of Fire Control System data. Made minor errors in interpretation of sensor data/marketing devices. More selective interpretation and updating could have increased system effectiveness. **(AC-130U):** Made minor errors in monitoring gun cooling times.

5.4.3.17.3. **U.** Displayed inadequate knowledge of onboard Fire Control Systems/Sensor Systems/Weapons Systems. Improper operation procedures could have resulted in damage to equipment or negatively affected mission accomplishment. Unable to effectively interpret sensor data/marketing devices. **(AC-130U):** Did not ensure correct gun cooling times were met.

5.4.3.18. Area 117. Local Range/Aerodrome Procedures and Restrictions (MSN).

5.4.3.18.1. **Q.** Complete knowledge of local ranges/aerodrome procedures and restrictions. Complied, advised, and coordinated all local range, special use airspace and airfield requirements during flight.

5.4.3.18.2. **Q-.** Limited knowledge of local ranges/aerodrome procedures and restrictions. Minor errors and omissions that did jeopardize flight safety. Slow to advise, coordinate or comply with in-flight local range/aerodrome requirements.

5.4.3.18.3. **U.** Unfamiliar with local range and aerodrome procedures. Unable to comply, coordinate, or advise with local range and airfield procedures.

5.4.3.19. Area 118. Employment Tactics (MSN).

5.4.3.19.1. **Q.** Thorough coordination with crew and LNOs to develop a comprehensive offensive employment plan and apply it during the mission. Knowledgeable of appropriate publications, manuals, TOs, AFIs, Order of Battle, ROE, Special Instructions, JTCG/ME, and ATOs. Demonstrated the ability to conduct (as required by mission profile) pre-planned/on call close air support (CAS), air interdiction, reconnaissance, fighter or helo integration, armed escort, and force protection measures. Effectively conducted combat/peacetime calls-for-fire IAW published procedures.

5.4.3.19.2. **Q-.** Basic coordination with crew and LNOs to develop an offensive employment plan with minor errors and/or omissions, but did not adversely affect mission accomplishment. Had some difficulty with finding relevant employment data from appropriate publications. Minor errors and/or omissions in CAS/air interdiction/reconnaissance/integration/armed escort/force protection that did not prevent mission success or contribute to mission failure. Minor errors in combat/peacetime calls-for-fire terminology or procedures that did not prevent mission success or jeopardize safety of aircrew or ground personnel.

5.4.3.19.3. **U.** Did not understand or failed to coordinate an offensive employment plan. Could not identify or find employment guidance in appropriate publications. Failed to conduct CAS/air interdiction/reconnaissance/integration/armed escort/force protection during the mission that resulted negatively on mission accomplishment, or contributed to mission failure. Errors in combat/peacetime calls-for-fire procedures or terminology that led to engaging targets within associated never-fire distances or without other required safety measures which prevented mission success or otherwise jeopardized safety of aircrew or ground personnel.

5.4.3.20. Area 119. Communication Procedures/Radio Transmission – Usage and Discipline (MSN).

5.4.3.20.1. **Q.** Complete knowledge of and compliance with communications procedures. Radio communications (both inter- and intra-cockpit) were concise, accurate, and effectively used to direct actions by the crew to update appropriate agencies of the tactical situation.

5.4.3.20.2. **Q-.** Minor terminology errors or omissions occurred, but did not significantly detract from situational awareness, threat warning, or mission accomplishment. Extraneous comments over primary and secondary radios presented minor distractions.

5.4.3.20.3. **U.** Unsatisfactory knowledge of/or failure to comply with communications procedures. Radio communications over primary/secondary radios were inadequate or excessive. Inaccurate or confusing terminology significantly detracted from situational awareness, threat warning, or mission accomplishment.

5.4.3.21. Area 120. Target Acquisition/Confirmation (MSN).

5.4.3.21.1. **Q.** Demonstrated ability to accurately identify targets and analyze aircraft position based on these targets. Quickly and accurately confirmed targets for engagement. Able to use sensors to update systems as applicable.

5.4.3.21.2. **Q-.** Ability to accurately identify targets was slow and was unsure of aircraft position. Slow to confirm targets for engagement. Had trouble coordinating for system updates using the sensors. Minor errors and omissions did not adversely affect target acquisition or confirmation.

5.4.3.21.3. **U.** Could not identify or identified the wrong target. Did not know aircraft position in relation to targets. Failed to confirm target, had to be repeatedly prompted to confirm, or confirmed the wrong target. Unable to successfully update systems with sensors.

5.4.3.22. Area 121. Time on Target (MSN).

5.4.3.22.1. Criteria are based on a point tangent to the orbit or as predetermined by the evaluator. For air-to-air refueling, see **Area 112. Air-to-Air Refueling Procedures**, this chapter.

5.4.3.22.2. **Q.** TOT: ± 30 seconds.

5.4.3.22.3. **Q-.** TOT: ± 1 minute.

5.4.3.22.4. **U.** Exceeded “Q-” criteria.

5.4.3.23. Area 122. Dual Target Attack (DTA) (MSN).

5.4.3.23.1. **Q.** Demonstrated a thorough knowledge of DTA tactics and employment. Used correct procedures to engage targets and update the fire control system. Used best gun/sensor combinations for the target set.

5.4.3.23.2. **Q-.** Displayed limited knowledge and employment of DTA. Minor errors degraded weapons effectiveness, but didn't adversely affect mission accomplishment.

5.4.3.23.3. **U.** Unable to perform DTA. Inadequate knowledge of procedures, tactics and employment.

5.4.3.24. Area 123. Strike Radar Procedures (AC-130U) (MSN).

5.4.3.24.1. **Q.** Ability to accurately identify targets using the radar. Demonstrated how beacon/ground moving target indicator functions work. Performed strike radar procedures using AFI 11-2AC-130, Vol 3 procedures.

5.4.3.24.2. **Q-.** Was slow to accurately identify targets using the radar. Had minor trouble demonstrating beacon/ground moving target indicator functions. Performed strike radar procedures using AFI 11-2AC-130, Vol 3 restrictions.

5.4.3.24.3. **U.** Was unable to accurately identify targets using the radar. Could not demonstrate beacon/ground moving target indicator functions. Violated AFI 11-2AC-130, Vol 3 restrictions.

5.4.3.25. Area 124. Degraded Procedures (MSN).

5.4.3.25.1. **Q.** Thorough understanding of impacts of degraded operations and how to compensate for degraded equipment to achieve mission accomplishment. Displayed awareness of operations restrictions associated with degraded systems.

5.4.3.25.2. **Q-.** Adequate knowledge of impacts and compensation for degraded operation. Minor errors/omissions that did not adversely affect mission accomplishment.

5.4.3.25.3. **U.** Unsatisfactory knowledge of degraded operations, restrictions, and/or compensation that adversely affected mission accomplishment.

5.4.3.26. Area 125. Self-Contained Approach (SCA) Procedures (QUAL/MSN).

5.4.3.26.1. **Q.** Complied with all published procedures. Successfully directed the aircraft to SCA minimums so that a safe landing could be made. Used proper terminology; instructions were clear and concise during the entire approach.

5.4.3.26.2. **Q-.** Briefing was incomplete or deviated from established procedures. Required excessive course corrections on final approach, but directed the aircraft to a point where a safe landing could be made.

5.4.3.26.3. **U.** Had unsatisfactory knowledge of SCA procedures. Unable to direct the aircraft to a point from which a safe landing could be made.

5.4.3.27. Areas 126 - 149. Reserved for future use.

Chapter 6

FIRE CONTROL OFFICER (FCO) EVALUATIONS

6.1. General. The criteria contained here and in [Chapter 2](#) apply to all FCO flight evaluations.

6.2. Performing Evaluator Duties. Dual-qualified navigator/FCOs may administer navigator and FCO evaluations simultaneously.

6.3. Requirements. Refer to [Chapter 2](#) for all evaluations. Instructors will demonstrate instructional ability on all periodic evaluations; refer to [Chapter 3](#) for instructor evaluation grading areas and criteria. FCO specific areas are listed in this chapter. (T-2)

6.3.1. Initial and Re-Qualification Qualification/Mission Evaluation. Evaluation will include all areas in [Chapter 2](#), [Chapter 3](#) (if applicable), and [Table 6.1](#). Administer the evaluation during a mission consisting of a live and dry fire. Comply with formal school course guidance if available. Tweak two guns as a minimum. A combat tweak and DTA are mandatory. The dry fire portion of the mission will include a minimum of one interdiction target, and a CAS/TIC scenario. (T-2)

6.3.1.1. FCO Periodic Evaluations. Periodic QUAL/MSN evaluations will include all areas in [Chapter 2](#), [Chapter 3](#) (if applicable), and [Table 6.1](#). Live and dry fire procedures will be evaluated on all periodic evaluations. Tweak one gun as a minimum. Firing in DTA mode and a combat tweak are required if practical. The dry fire portion of the mission will include a minimum of one interdiction target, and a CAS/TIC scenario. (T-2)

6.3.1.2. AC-130 Dual Qualified Nav/FCO QUAL/MSN Evaluations. Enter a separate flight phase entry in Section II of the AF Form 8/8A for the navigator and FCO portions with the appropriate dates. For dual qualified Nav/FCO evaluations, designate the crew position in Section I as navigator. (T-2)

6.3.1.2.1. Initial. Navigators and FCOs already qualified in one position, and selected to maintain dual qualification, must satisfy the initial evaluation requirements for the position in which they are upgrading. (T-2)

6.3.1.2.2. Recurring. If possible, complete a combined evaluation during the earliest eligibility period. Evaluate equipment preflight, sensor alignment, and live-fire in the FCO position. Evaluate all other events in the navigator position. If unable to complete a combined evaluation, separate evaluations are authorized, but they must satisfy all requirements for each crew position. (T-2)

6.3.1.2.3. Dual qualified navigator/FCOs unqualified in mission events in either position remain unqualified in all AC-130 missions until a requalification evaluation is successfully completed.

6.3.2. Special Qualification Evaluations. Not applicable.

6.4. Grading Criteria.

6.4.1. Areas 1 through 19: Use general grading criteria in [Chapter 2](#) of this volume. (T-2)

6.4.2. **Areas 20 through 29:** Use instructor evaluation grading criteria in **Chapter 3** of this volume (if applicable). (T-2)

6.4.3. **Areas 350 through 399:** The following subparagraphs contain the evaluation grading criteria for the areas listed in **Table 6.1**.

Table 6.1. Fire Control Officer Grading Areas.

Area	Notes	Area Name
350	3	Fire Control System/Displays
351	3	Sensor Alignment
352	3	Tactical Navigation
353	3	Target Acquisition/Sensor Employment
354	3	Weapon/Ammunition Usage
355	2	Tweak Procedures
356	3	Reconnaissance/Search
357	2	Close Air Support
358	2	Interdiction
359	3	Force Protection
360	3	Post Strike
361	2	Dual Target Attack
362	3	Degraded Procedures
363	3	Local Range/Aerodrome Procedures and Restrictions
364-399		Reserved for Future Use
Notes: 1. Required in-flight 2. Required in-flight or simulator certified for this event 3. Required in-flight or alternate method		

6.4.3.1. **Area 350. Fire Control System/Displays.** ‘Fire control systems’ refers to actual systems onboard unit aircraft (i.e., Mission Computer, INS/GPS, Fire Control Displays, etc.).

6.4.3.1.1. **Q.** Had a thorough knowledge of onboard Fire Control Systems. Effectively used all systems to direct weapons delivery and update systems as required. Understood how each component incorporated within the Fire Control System.

6.4.3.1.2. **Q-.** Had a basic knowledge of onboard Fire Control Systems. Minor Fire Control System errors decreased system effectiveness but did not prevent mission accomplishment.

6.4.3.1.3. **U.** Displayed inadequate knowledge of onboard Fire Control Systems. Improper operation procedures could have resulted in damage to equipment or

affected mission accomplishment. Failed to update or correctly interpret Fire Control System data.

6.4.3.2. **Area 351. Sensor Alignment.**

6.4.3.2.1. **Q. (AC-130H)** Directed the aircraft and sensors to acquire and track alignment point. Tracking of alignment point did not exceed 1 mil. Effectively completed the air alignment including the Head-up Display (HUD)/Sensor alignment, Sensor Angle Displays (SADs) and slaving checks, offset checks, and trainable gun checks IAW TOs procedures and instructions. Evaluated commanded and current gun aiming errors within 2 milliradians (mr).

6.4.3.2.2. **Q. (AC-130U)** Directed the aircraft and sensors to acquire and track the alignment point. Tracking of alignment point did not exceed 2 mr. Effectively completed sensor-sensor calibration, air boresight, slaving, and offset checks IAW TOs procedures and instructions. Evaluated commanded and current gun aiming errors within 2 mr.

6.4.3.2.3. **Q-.** Minor errors in procedures, readings or inputs that delayed completion, or resulted in minor inaccuracies of the sensor alignment. Tracking of alignment point did not exceed 2 mr. Errors did not delay mission timing for events (range times, TOTs, RVCT). Inputted HUD/sensor alignment data was not greater than 2 mr in error. Evaluated commanded and current gun aiming errors within 5 mr.

6.4.3.2.4. **U.** Unable to follow sensor alignment procedures to complete alignment. Failed to direct sensors to a common alignment point. Utilized erroneous data that exceeded Q- criteria.

6.4.3.3. **Area 352. Tactical Navigation.**

6.4.3.3.1. **Q.** Direct the airplane in the tactical environment utilizing all available resources to achieve mission accomplishment. Thorough knowledge of aircraft guidance/position utilizing sensors, navigation systems, and/or radar.

6.4.3.3.2. **Q-.** Adequate knowledge of aircraft guidance/position utilizing sensors, navigation systems, and/or radar. Minor errors/omissions did not adversely affect mission accomplishment.

6.4.3.3.3. **U.** Deviations of direction that resulted in mission failure. Improper use and knowledge of sensors, navigation systems, and/or radar.

6.4.3.4. **Area 353. Target Acquisition/Sensor Employment.**

6.4.3.4.1. **Q.** Demonstrated ability to accurately identify targets using sensors and analyze aircraft position based on these targets. Thorough knowledge of sensor capabilities for selected target. Used best sensor system for acquisition and employment based on targets, illumination, weather, threats, slant range and identification of marking devices.

6.4.3.4.2. **Q-.** Minor difficulty accurately identifying targets and or unsure of aircraft position based on targets. Minor sensor selection errors that did not affect target acquisition.

6.4.3.4.3. **U.** Unable to identify target or identified the wrong target. Sensor selection was inappropriate for conditions and/or contributed to inability to acquire target.

6.4.3.5. Area 354. Weapon/Ammunition Usage.

6.4.3.5.1. **Q.** Demonstrated thorough knowledge of the appropriate selection and use of weapons and ammunition to achieve mission accomplishment. This includes various types of rounds and fuse settings for the best results on various targets, inputs to fire control system, and in-flight decision making for the usage and selection of rounds/guns/fuses.

6.4.3.5.2. **Q-.** Adequate knowledge weapon/ammunition usage. Minor errors and omissions resulting in delayed or incomplete damage. May not have used the best weapon/ammunition usage and/or employment techniques, but satisfactorily completed mission objectives.

6.4.3.5.3. **U.** Limited knowledge of weapon/ammunition usage. Selected inappropriate weapon/ammunition for the mission tasking that resulted in mission failure.

6.4.3.6. Area 355. Tweak Procedures.

6.4.3.6.1. **Q.** Effectively performed, fixed, trainable, and/or combat tweaks of 25mm, 40mm, and/or 105mm guns as required by TOs/instructions. Thorough knowledge of tweak procedures including accurate altitude updates, proper nominals, copy-tweak procedures, and ammunition codes. Tweak results were within 3 mr of target based on smooth air criteria in [Chapter 1](#).

6.4.3.6.2. **Q-.** Minor deviations of tweak procedures and mission computer inputs resulting in tweak errors from 3 to 5 mr.

6.4.3.6.3. **U.** Unsatisfactory knowledge and performance of tweak. Violated laser restrictions or accepted invalid updates. Results exceeded Q- criteria.

6.4.3.7. Area 356. Reconnaissance/Search.

6.4.3.7.1. **Q.** Thorough knowledge of various methods used for searching. Provided accurate visual picture and situational awareness of ground terrain and movement. Proper use of sensors and aircraft position to complete search tasking.

6.4.3.7.2. **Q-.** Adequate knowledge of searching methods. A better choice of techniques, interpretation or sensor usage, could have improved accuracy and speed.

6.4.3.7.3. **U.** Unable to apply search methods to complete search tasking. Unsatisfactory knowledge of search techniques, interpretation and sensor usage.

6.4.3.8. Area 357. Close Air Support.

6.4.3.8.1. **Q.** Effective/timely knowledge and performance of CAS. Used range and bearing, laser sparkle, marking devices, and/or incoming radio, in determining the position of friendly forces versus target locations(s). Coordinated with pilot, navigator, and sensors to ensure timely and accurate firepower to support friendly units or TIC.

6.4.3.8.2. **Q-** Limited knowledge and performance of CAS. Excessive time in identifying friendly forces and target locations. Made minor coordination/omission errors that delayed fire support, but fire support was still effective.

6.4.3.8.3. **U.** Failed to successfully perform CAS. Misidentified or failed to locate friendly forces and/or enemy forces. Failed to follow AFI 11-2AC-130, Vol 3 “Danger Close” guidance. Engaged wrong target and/or friendly positions. Performance or lack of knowledge resulted in delayed fire support to such an extent that fire support did not achieve mission objective.

6.4.3.9. Area 358. Interdiction.

6.4.3.9.1. **Q.** Demonstrated ability to use sensors, charts and/or imagery to identify the confirmation points and target (3 mr size). Selected appropriate employment to ensure desired results. Identified target in less than 1 orbit.

6.4.3.9.2. **Q-** Minor errors that delayed identification of confirmation points and targets. May not have used the best identification and/or employment techniques, but satisfactorily completed mission objectives. Identification of target took between 1 to 3 orbits.

6.4.3.9.3. **U.** Was unable to identify targets or confirmation points. Engaged wrong targets. Could not complete mission objectives due to inappropriate identification and/or employment techniques. Exceeded “Q-“ criteria.

6.4.3.10. Area 359. Force Protection.

6.4.3.10.1. **Q.** Thorough knowledge of airbase defense, facility defense, fighter/helicopter escort. Ability to plan coordinate and reference appropriate publications on force protection.

6.4.3.10.2. **Q-** Minor errors and/or omissions in force protection procedures or knowledge of operations that did not adversely affect mission accomplishment.

6.4.3.10.3. **U.** Unfamiliar with force protection planning or execution. Errors and omissions resulted in mission failure.

6.4.3.11. Area 360. Post Strike.

6.4.3.11.1. **Q.** Accurately completed all forms/reports/logs. Ensured all mission data is stored and recorded properly. Accurately recorded and stored Battle Damage Assessment (BDA)/Digital Video Recorder (DVR) media.

6.4.3.11.2. **Q-** Minor errors made in completed forms/reports/logs. Minor errors in mission data inputs. BDA/DVR recording was degraded due to operator error.

6.4.3.11.3. **U.** Failed to complete required forms. Due to operator error/omission, failed to record mission data and/or BDA/DVR recording.

6.4.3.12. Area 361. Dual Target Attack.

6.4.3.12.1. **Q.** Demonstrated a thorough knowledge of DTA tactics and employment. Used correct procedures to engage targets and update the fire control system. Used best gun/sensor combinations for the target set.

6.4.3.12.2. **Q-**. Displayed limited knowledge and employment of DTA. Minor errors degraded weapons effectiveness, but didn't adversely affect mission accomplishment.

6.4.3.12.3. **U**. Unable to perform DTA. Knowledge or performance exceeded Q-criteria.

6.4.3.13. Area 362. Degraded Procedures.

6.4.3.13.1. **Q**. Thorough understanding of impacts of degraded operations and how to compensate for degraded equipment to achieve mission accomplishment. Displayed awareness of operations restrictions associated with degraded systems.

6.4.3.13.2. **Q-**. Adequate knowledge of impacts and compensation for degraded operation. Minor errors/omissions that did not adversely affect mission accomplishment.

6.4.3.13.3. **U**. Unsatisfactory knowledge of degraded operations, restrictions, and/or compensation that adversely affected mission accomplishment.

6.4.3.14. Area 363. Local Range/Aerodrome Procedures and Restrictions.

6.4.3.14.1. **Q**. Complete knowledge of local ranges/aerodrome procedures and restrictions. Complied, advised, and coordinated all local range, special use airspace and airfield requirements during flight.

6.4.3.14.2. **Q-**. Limited knowledge of local ranges/aerodrome procedures and restrictions. Minor errors and omissions that did not jeopardize flight safety. Slow to advise, coordinate or comply with in-flight local range/aerodrome requirements.

6.4.3.14.3. **U**. Unfamiliar with local range and aerodrome procedures. Unable to comply, coordinate, or advise with local range and airfield procedures.

6.4.3.15. Areas 364 through 399. Reserved for future use.

Chapter 7

ELECTRONIC WARFARE OFFICER (EWO) EVALUATIONS

7.1. General. Electronic warfare officers require a combined qualification and mission evaluation. Instructors will demonstrate instructional ability on all periodic evaluations. (T-2)

7.2. Requirements. Refer to [Chapter 2](#) for all evaluations; refer to [Chapter 3](#) for instructor evaluation grading areas and criteria. EWO specific areas are listed in this chapter. (T-2)

7.3. Qualification/Mission Evaluations. See [Table 7.1](#) for required evaluation areas.

7.3.1. Initial/Re-qualification. Required in-flight events include a dry-fire scenario and Electronic Countermeasures (ECM) activity with ground radar, naval radar, or airborne interceptors. ECM activity should include tactical maneuvers against a cross-section of available signals. When maneuvering airspace is not available in conjunction with ECM, then tactical maneuvers will be conducted in the dry fire area. At least three distinct tactical engagements/intercepts will be performed. A minimum of one pre-briefed threat will be placed in the dry-fire scenario. Additionally, at least one non-preplanned threat will be given in flight. (T-2)

7.3.2. Periodic QUAL/MSN. Required in-flight events are the same as initial/re-qualification evaluations except that at least one tactical engagement/intercept must be performed. (T-2)

7.3.3. Simulator Evaluations. See [Paragraph 1.9](#) for use of ATDs.

7.4. Special Qualification Evaluations. Not applicable.

7.5. Grading Criteria.

7.5.1. Areas 1 through 19: Use general grading criteria in [Chapter 2](#) of this volume. (T-2)

7.5.2. Areas 20 through 29: Use instructor evaluation grading criteria in [Chapter 3](#) of this volume (if applicable). (T-2)

7.5.3. Areas 150 through 199: The following subparagraphs contain the evaluation grading criteria for the areas listed in [Table 7.1](#).

7.5.3.1. Area 150. Use of Navigational Equipment.

7.5.3.1.1. Q. Demonstrated thorough knowledge of onboard navigation system operating procedures. Effectively used navigation systems to direct the aircraft and verify execution of threat maneuvers. Able to interpret bull's-eye threat calls and calculate range and bearing information with available equipment.

7.5.3.1.2. Q-. Demonstrated basic knowledge of onboard navigation systems. Made minor errors in operation/interpretation of navigation system data. Slow to interpret bull's-eye information or calculate range and bearing.

7.5.3.1.3. U. Displayed inadequate knowledge of onboard navigation system procedures. Improper operation procedures could have resulted in damage to equipment or affected mission accomplishment. Could not determine aircraft position/attitude/altitude. Unable to determine position relative to bull's-eye point.

Table 7.1. EWO QUAL/MSN Grading Areas.

Area	Notes	Area Name
150	2	Use of Navigational Equipment
151	3	Threat Identification
152	2	Crew Notification
153	2	Use of Evasive Maneuvers
154	2	Expendable Employment
155	2	ECM/Infrared Countermeasures (IRCM) Employment
156	2	Equipment Operation/Malfunction Analysis
157	5	Ingress
158	5	Strike Procedures/Tactical Execution
159	5	Egress of Objective Area
160	3	Range Procedures/ROE
161	3	Cryptological Material Requirements
162	3	Cryptological System Operations
163	3	Authentication/Encode-Decode Procedures
164	3, 4	Sensor Alignment
165	3, 4	Sensor Systems
166	3, 4	Target Identification/Acquisition/Tracking
167-199		Reserved for future use
Notes: 1. Required in-flight. 2. Required in-flight or simulator certified for this event. 3. Required in-flight or alternate method. 4. Required on AC-130H evaluations only. 5. Required in-flight (AC-130H) or in simulator certified for this event (AC-130U).		

7.5.3.2. Area 151. Threat Identification.

7.5.3.2.1. **Q.** All direct threat/Target Acquisition Radar (TAR) signals were correctly identified in a timely manner. All threat parameters were correctly identified in a timely manner. All indirect signals were identified as appropriate for the situation.

7.5.3.2.2. **Q-.** All threat signals were correctly identified with only minor delays that did not affect the mission. Threat parameters were initially incorrectly identified but corrected in a timely manner. Indirect signal(s) were initially identified as a threat/TAR but corrected in a timely manner.

7.5.3.2.3. **U.** Unable to identify threat signals correctly without adverse delay. Unable to correctly identify threat parameters. Identified an indirect threat as a direct threat/TAR.

7.5.3.3. Area 152. Crew Notification.

7.5.3.3.1. **Q.** Threat calls (both inter- and intra-cockpit) were concise, accurate, and effectively used to direct maneuvers or describe the tactical situation. Post engagement crew recommendations were made in a timely manner and in accordance with the tactical situation.

7.5.3.3.2. **Q-.** Minor terminology errors or omissions occurred, but did not significantly detract from threat reaction, situational awareness, mutual support, or mission accomplishment. Extraneous comments over radios/interphone presented minor distractions. Post engagement crew recommendations were made slowly or did not fully take into account the tactical situation.

7.5.3.3.3. **U.** Threat calls over radios/interphone were inadequate or excessive causing delay in crew notification and threat reactions. Inaccurate or confusing terminology significantly detracted from threat reaction, mutual support, situational awareness, or mission accomplishment. Failed to notify crew of a terminal threat. Failed to make post engagement crew recommendations or made recommendations that ran counter to the tactical situation.

7.5.3.4. Area 153. Use of Evasive Maneuvers.

7.5.3.4.1. **Q.** Applied tactics consistent with the threat, current directives, and good judgment. Executed the plan and achieved mission goals. Quickly adapted to changing environment. Maintained situational awareness. Threat reactions were timely and correct.

7.5.3.4.2. **Q-.** Applied tactics with only minor deviations, omissions, and/or errors which degraded the reliable accomplishment of mission objectives or mission effectiveness but did not prevent the successful accomplishment of the overall mission goal. Slow to react to a changing environment. Situational awareness and timely threat reactions were poor.

7.5.3.4.3. **U.** Unable to accomplish the mission due to major errors or omissions during execution of the tactical plan. Situational awareness lost. Numerous threat reactions were omitted or incorrect. Failed to accomplish countermeasures or maneuvers to counter threat.

7.5.3.5. Area 154. Expendable Employment.

7.5.3.5.1. **Q.** Procedures were accomplished in a timely manner and, according to TOs and governing directives, with only minor deviations, omissions, and/or errors. Procedures ensured maximum protection without undue highlighting of aircraft.

7.5.3.5.2. **Q-.** Procedures were accomplished according to TOs and governing directives, but with deviations, omissions, and/or errors demonstrating minimum acceptable knowledge of TOs or governing directives. Procedures/settings caused unnecessary highlighting of the aircraft, but did not compromise the objective/mission accomplishment.

7.5.3.5.3. **U.** Procedures were omitted or accomplished with deviations, omissions or errors demonstrating unacceptable knowledge of TOs or governing directives. Unnecessarily highlighted aircraft or compromised objective area. Unauthorized use of expendables.

7.5.3.6. Area 155. ECM/IRCM Employment.

7.5.3.6.1. **Q.** Correctly applied/set/configured countermeasures in a timely manner in accordance with governing directives.

7.5.3.6.2. **Q-.** Applied/set/configured countermeasures in a timely manner with only minor deviations, omissions, and/or errors. Late configuring automatic jammers for operations, but did not cause undue exposure to the threat. Demonstrated minimal acceptable knowledge of TOs or governing directives.

7.5.3.6.3. **U.** Late or inappropriate countermeasures for the threat encountered. Inappropriate threat file selected. Demonstrated unacceptable knowledge and indicated a definite need for additional training. Failed to counter a direct threat. Unauthorized use of ECM.

7.5.3.7. Area 156. Equipment Operation/Malfunction Analysis.

7.5.3.7.1. **Q.** Operated equipment according to procedures and checklists contained in TOs and governing directives. Accurately and efficiently analyzed equipment malfunctions with consistent reliable mission results. Notified crew in a timely manner.

7.5.3.7.2. **Q-.** Operated equipment with minor deviations, omissions, and/or errors from procedures required by TOs or governing directives. Equipment malfunctions were analyzed in error, or caused by erroneous data insertion or faulty operator techniques, but did not significantly affect mission accomplishment. Deviations, omissions, and/or errors in malfunction analysis, prescribed procedures, or faulty techniques caused a degradation of equipment performance. The level of performance or knowledge consistently resulted in marginal reliability. Did not damage equipment. Unnecessarily delayed notifying crew.

7.5.3.7.3. **U.** Equipment damage would have resulted due to circumstances within operator's control. Equipment malfunctions were consistently ignored. Could not recognize a major equipment malfunction. Could not obtain acceptable results due to poor operational techniques or procedures. Failed to notify crew.

7.5.3.8. Area 157. Ingress.

7.5.3.8.1. **Q.** Initial equipment settings were accomplished IAW applicable mission materials and verified using pre-combat entry/prestrike checklists prior to the Combat Entry Point. Notified crew of the Combat Entry Point. Accomplished receiver monitoring and procedures IAW governing directives. Effectively used evasive maneuvers, terrain masking, route, and/or altitude selection to ingress the objective area without undue exposure to enemy defenses or compromise of the objective. Accomplished receiver monitoring and procedures IAW governing directives. Effectively used evasive maneuvers, terrain masking, route, altitude, and/or hold-point selection to ingress the objective area without undue exposure to enemy defenses or compromise of the objective.

7.5.3.8.2. **Q-.** Accomplished procedures with minor deviations, omissions or errors. Did not ensure aircraft fully configured prior to the Combat Entry Point, but did not affect exposure to threats, aircraft safety, or mission accomplishment. Demonstrated

minimum acceptable knowledge/performance of TOs or governing directives. Ingress contributed to unnecessary exposure to threats.

7.5.3.8.3. **U.** Major deviations, omissions or errors. Failed to accomplish pre-combat entry procedures. Delayed pre-combat entry procedures exposing the aircraft to threats, affecting mission accomplishment. Lacked minimum acceptable knowledge/performance of TOs or governing directives. Ingress caused excessive exposure to threats or compromised objective.

7.5.3.9. Area 158. Strike Procedures/Tactical Execution.

7.5.3.9.1. **Q.** Applied tactics consistent with threat, directives, and good judgment. Executed the plan and achieved mission goals. Quickly adapted to changing environment. Maintained situational awareness. Threat reactions were timely and correct. Thorough knowledge of tactical procedures to include frequencies, radio requirements, and aircraft/airspace deconfliction. Able to determine aircraft position utilizing available resources (charts, flight plan, and aircraft equipment). Provided timely/accurate post-engagement threat analysis.

7.5.3.9.2. **Q-.** Applied tactics with only minor deviations, omissions, and/or errors which degraded weapons delivery or mission effectiveness but did not prevent the successful accomplishment of the overall mission goal. Slow to react to a changing environment. Poor situational awareness and slow threat reactions. Limited knowledge of tactical procedures to include frequencies, radio requirements, and aircraft/airspace deconfliction. Slow to determine aircraft position utilizing available resources (charts, flight plan, and aircraft equipment). Slow post-engagement threat analysis delayed mission accomplishment. Strike/tactical procedures included minor errors not critical to mission safety and/or accomplishment.

7.5.3.9.3. **U.** Unable to accomplish the mission due to major errors or omissions during execution of the tactical plan. Lost situational awareness. Omitted/incorrectly applied numerous threat reactions. Failed to accomplish countermeasures or maneuvers to counter threat. Lacked knowledge of tactical procedures to include frequencies, radio requirements, and aircraft/airspace deconfliction. Unable to determine aircraft position utilizing available resources (charts, flight plan, and aircraft equipment). Excessively slow/inaccurate threat analysis compromised mission. Strike/tactical procedures compromised mission safety and/or accomplishment.

7.5.3.10. Area 159. Egress of Objective Area.

7.5.3.10.1. **Q.** Effectively used evasive maneuvers, terrain masking, route, and/or altitude selection to complete an expeditious egress from the objective area without undue exposure to enemy defenses or unnecessary over flight of previous targets.

7.5.3.10.2. **Q-.** Egress contributed to unnecessary exposure to threats and delayed departure from target area.

7.5.3.10.3. **U.** Egress caused excessive exposure to threats. Disregarded previous target areas/threats.

7.5.3.11. Area 160. Range Procedures/ROE.

7.5.3.11.1. **Q.** Fully knowledgeable of applicable range restrictions/range handbook guidance/ROE. Properly coordinated ECM range/air-intercepts IAW established guidance. Used proper procedures for ECM range/working area check-in, entry, and exit. Used proper air intercept coordination and check-in procedures. Understands and utilized all applicable brevity terms. Ensured crew understands/adheres to restrictions/ROE.

7.5.3.11.2. **Q-.** Minor deviations, omissions, and/or errors. Made timely and positive corrections. Minor delays in ceasing ECM or expendable operations when directed by range. Did not jeopardize safety.

7.5.3.11.3. **U.** Significant deviations indicating a lack of knowledge of training restrictions / range procedures / ROE. Failed to accomplish air intercept coordination brief IAW established guidance. Did not understand critical brevity terms. Failed to cease ECM or expendable operations when directed by range. Failed to adhere to ECM/expendable restrictions. Deviations would jeopardize safety if allowed to continue uncorrected. Unauthorized use of operational ECM software.

7.5.3.12. Area 161. Cryptological Material Requirements.

7.5.3.12.1. **Q.** Identified, requested, and obtained all cryptological material required for the mission.

7.5.3.12.2. **Q-.** Identified cryptological material required for mission, but was slow in requesting/obtaining material or did so only after being prompted.

7.5.3.12.3. **U.** Failed to identify, request or obtain all cryptological materials required for the mission.

7.5.3.13. Area 162. Cryptological System Operations.

7.5.3.13.1. **Q.** Thorough knowledge of applicable cryptological systems. Full knowledge of keying devices and materials. With use of a guide, keyed all systems without error.

7.5.3.13.2. **Q-.** Familiar with applicable cryptological systems, keying devices and materials. With use of guide, keyed most systems with minor error.

7.5.3.13.3. **U.** Lacked knowledge of applicable cryptological systems, keying devices or keying materials. Unable to key systems without error.

7.5.3.14. Area 163. Authentication/Encode-Decode Procedures.

7.5.3.14.1. **Q.** Thorough knowledge of authentication/encode-decode materials and procedures. Correct/timely authentication procedures. Correct/timely encode-decode procedures when required. Correct authentication/encode-decode materials were always readily at hand.

7.5.3.14.2. **Q-.** Limited knowledge of authentication/encode-decode materials and procedures which did not affect mission accomplishment. Correct but slow authentication which did not affect mission accomplishment. Correct but slow encode-decode procedures which did not affect mission accomplishment.

7.5.3.14.3. **U.** Unsatisfactory knowledge of authentication/encode-decode materials and procedures. Incorrect or excessively slow authentication. Unable to encode-decode when required. Authentication/encode-decode materials were not readily available or were incorrect.

7.5.3.15. Area 164. Sensor Alignment (AC-130H).

7.5.3.15.1. **Q.** Performed sensor alignment according to procedures and checklists contained in TOs and governing directives. Utilized standardized terminology.

7.5.3.15.2. **Q-.** Minor errors in sensor alignment procedures that did not adversely impact system performance or mission accomplishment. Failed to utilize standardized terminology.

7.5.3.15.3. **U.** Unable to perform sensor alignment. Major errors/omission of steps during alignment procedure. Confusing terminology caused unnecessary delays and/or confusion during alignment procedure impacting mission accomplishment.

7.5.3.16. Area 165. Sensor Systems (AC-130H).

7.5.3.16.1. **Q.** Operated equipment according to procedures and checklists contained in TOs and governing directives. Accurately and efficiently analyzed equipment malfunctions with consistent reliable mission results. No damage or significant system degradation resulted from operator inputs or lack of knowledge.

7.5.3.16.2. **Q-.** Operated equipment with minor deviations, omissions, and/or errors from procedures required by TOs or governing directives. Equipment malfunctions were consistently ignored, analyzed in error, or caused by erroneous data insertion or faulty operator techniques. Deviations, omissions, and/or errors in malfunction analysis, prescribed procedures, or faulty techniques caused a degradation of equipment performance. The level of performance or knowledge consistently resulted in marginal reliability. Did not damage equipment.

7.5.3.16.3. **U.** Could not configure the sensor for beacon tracking. Equipment damage would have resulted due to circumstances within operator's control. Could not recognize a major equipment malfunction. Could not obtain acceptable results due to poor operational techniques or procedures.

7.5.3.17. Area 166. Target Identification/Acquisition/Tracking (AC-130H).

7.5.3.17.1. **Q.** Proper identification/acquisition/tracking of target beacon. Utilized proper procedures and correctly identified limitations/malfunctions when beacon cannot be tracked due to circumstances outside operator's control.

7.5.3.17.2. **Q-.** Difficulty in identifying/acquiring/tracking target beacon due to minor errors or deviations within operator's control. Limited knowledge of limitations/malfunctions causing beacon tracking problems.

7.5.3.17.3. **U.** Unable to properly identify/acquire/track target beacon due to poor procedures or circumstances within operator's control.

7.5.3.18. Area 167-199. Reserved for future use.

Chapter 8

FLIGHT ENGINEER EVALUATIONS

8.1. General. Mission qualified flight engineers require a QUAL evaluation, MSN evaluation and AAR certification. Flight engineers may receive a QUAL evaluation enabling them to fly on non-mission sorties. (T-2)

8.2. Requirements. Refer to [Chapter 2](#) for all evaluations. Instructors will demonstrate instructional ability on all periodic evaluations; refer to [Chapter 3](#) for instructor evaluation grading areas and criteria. (T-2)

8.3. Qualification (QUAL). Refer to [Table 2.1](#) and [Table 8.1](#) for required QUAL evaluation areas. Ensure requisites are completed per AFI 11-202V2, as supplemented. Conduct the QUAL evaluation in-flight or in a Weapon System Trainer (WST) certified to accomplish specified events. QUAL evaluations may be conducted in conjunction with INIT/RQ MSN or periodic MSN evaluations. (T-2)

8.4. Mission (MSN). Refer to [Table 2.1](#) and [Table 8.1](#) for required MSN evaluation areas. Ensure requisites are completed per AFI 11-202V2, as supplemented. Conduct the MSN evaluation in-flight or in a Weapon System Trainer (WST) certified to accomplish specified events. (T-2)

8.4.1. **INIT/RQ.** Administer the evaluation on a live fire mission. Include as a minimum: a complete preflight, operation of aircraft systems, armament controls, and performance of other assigned duties. (T-2)

8.4.2. **Periodic.** Requirements are the same as the INIT/RQ MSN evaluation, except the evaluation may be administered on a dry-fire mission.

8.5. Grading Criteria.

8.4.1. **Areas 1 through 19:** Use general evaluation grading criteria in [Chapter 2](#) of this volume. (T-2)

8.4.2. **Areas 20 through 29:** Use instructor grading criteria in [Chapter 3](#) (if applicable). (T-2)

8.4.3. **Areas 200 through 249:** The following subparagraphs contain the evaluation grading criteria for the grading areas listed in [Table 8.1](#).

Table 8.1. Flight Engineer Grading Areas.

Area	Notes	Area Name	QUAL / MSN
200	2	Take Off and Landing Data (TOLD)	Qual
201	3	Ground Support Equipment	Qual
202	3	Refuel/Defuel	Qual
203	2	Before Starting Engines/Starting Engines	Qual
204	2	Before Taxi/Taxi	Qual
205	2	Before Takeoff/Lineup	Qual
206	2	After Takeoff	Qual

207	2	Enroute	Qual
208	2	Descent/Before Landing	Qual
209	2	After Landing	Qual
210	2	Engine Shutdown	Qual
211	2	Before Leaving Airplane	Qual
212	2	Post-flight	Qual
213	3	Mission Procedures	Msn
214	3	Night Vision Goggle (NVG) Usage/Limitations	Msn
215	2, 3	Air-to-Air Refueling System/Procedures	Qual or Msn
216	2	Engine	Qual
217	2	Propeller	Qual
218	2	Fuel	Qual
219	2	Electrical	Qual
220	2	Hydraulic	Qual
221	2	Flight Controls/Flaps	Qual
222	2	Landing Gear/Brakes/Steering	Qual
223	2	Fire Detection/Extinguishing	Qual
224	2	Pneumatic/Bleed Air	Qual
225	2	Environmental/Air Conditioning	Qual
226	2	Pressurization/Depressurization	Qual
227	2	Anti-icing/De-icing	Qual
228	2	Lighting	Qual
229	2	Oxygen	Qual
230	2	Auxiliary Power Unit (APU)/Gas Turbine Compressor (GTC)	Qual
231	2	Doors/Hatches/Ramps	Qual
232	2	Windows/Windshields	Qual
233	2	Radio/Radar Systems	Qual
234	2	INS/SCNS	Qual
235		Reserved for Future Use	
236	2	Voice Recorder/Digital Flight Data Recorder (DFDR)	Qual
237	2	Weapons	Msn
238	2	Aircraft Defensive Systems/Equipment	Msn
239-249		Reserved for Future Use	

Notes:

1. Required in-flight.
2. Required in-flight or simulator certified for this event.
3. Required in-flight or alternate method.

8.4.3.1. Area 200. Take-off and Landing Data.

8.4.3.1.1. Electronic Takeoff and Landing Data (E-TOLD). Regardless of E-TOLD availability, flight engineers will be evaluated on their ability to compute TOLD using the -1-1 performance manual. This applies to INIT, RQ, and recurring

evaluations. E-TOLD may be used for the rest of the evaluation after the examinee demonstrates proficiency to the satisfaction of the evaluator. (T-2)

8.4.3.1.2. **Q.** Correctly computed the TOLD using applicable performance data and corrections for existing field conditions. Transcribed Mini TOLD correctly. Fully knowledgeable of takeoff and landing performance data.

8.4.3.1.2.1. TOLD criteria:

8.4.3.1.2.2. Required Airspeeds: ± 2 knots.

8.4.3.1.2.3. Required Distances: ± 200 feet.

8.4.3.1.2.4. Predicted Takeoff Torque: ± 200 in/lbs.

8.4.3.1.3. **Q-.** Minor errors in the use of applicable performance charts, computing the performance data, or correcting for existing field conditions resulting in data exceeding Q criteria. Incorrectly transcribed Mini TOLD. Had basic knowledge of takeoff and landing performance data. Would not have compromised safety of flight.

8.4.3.1.3.1. TOLD criteria:

8.4.3.1.3.1.1. Required Airspeeds: ± 4 knots.

8.4.3.1.3.1.2. Required Distances: ± 400 feet.

8.4.3.1.3.1.3. Predicted Takeoff Torque: ± 400 in/lbs.

8.4.3.1.4. **U.** Failed to compute TOLD, omitted necessary corrections for existing field conditions, or errors in computing performance data resulted in airspeeds and/or distances exceeding Q- criteria. Limited knowledge of takeoff and landing performance data. Did or could have compromised safety of flight.

8.4.3.2. **Area 201. Ground Support Equipment.**

8.4.3.2.1. **Q.** Accomplished or demonstrated a satisfactory knowledge of positioning, normal operation, and emergency shutdown of required ground support equipment with no errors, omissions, or deviations.

8.4.3.2.2. **Q-.** Accomplished or demonstrated a limited knowledge of positioning, normal operation, and emergency shutdown of required ground support equipment with minor errors, omissions, or deviations that did not jeopardize safety.

8.4.3.2.3. **U.** Failed to accomplish or demonstrate adequate knowledge of positioning, normal operation, and emergency shutdown of required ground support equipment that did or could have jeopardized safety.

8.4.3.3. **Area 202. Refuel/Defuel.**

8.4.3.3.1. **Q.** Demonstrated a satisfactory knowledge of or accomplished refuel/defuel operations with no errors, omissions, or deviations from established procedures. Maintained fuel balance limits and adhered to existing published safety precautions. Demonstrated a working knowledge of the aircraft refueling/defueling system and a satisfactory knowledge of concurrent refueling procedures and appropriate safety precautions IAW TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*.

- 8.4.3.3.2. **Q-** Demonstrated a limited knowledge of or accomplished refuel/defuel operations with minor errors, omissions, or deviations that did not jeopardize safety. Limited knowledge of the aircraft refueling/defueling system and components.
- 8.4.3.3.3. **U.** Demonstrated inadequate knowledge of or failed to accomplish refuel/defuel operations, made errors, omissions, or deviations that would have jeopardized safety. Inadequate knowledge of concurrent refueling operations and appropriate safety precautions.
- 8.4.3.4. **Area 203. Before Starting Engines/Starting Engines.**
- 8.4.3.5. **Area 204. Before Taxi/Taxi.**
- 8.4.3.6. **Area 205. Before Takeoff/Lineup.**
- 8.4.3.7. **Area 206. After Takeoff.**
- 8.4.3.8. **Area 207. Enroute.**
- 8.4.3.9. **Area 208. Descent/Before Landing.**
- 8.4.3.10. **Area 209. After Landing.**
- 8.4.3.11. **Area 210. Engine Shutdown.**
- 8.4.3.12. **Area 211. Before Leaving Airplane.**
- 8.4.3.13. **Areas 203 through 211:** Use the grading criteria in the following subparagraphs:
- 8.4.3.13.1. **Q.** Accomplished required checklists without errors, omissions, or deviations. Backed up pilots on flight parameters (i.e., altitudes, airspeeds, and clearances). Satisfactorily monitored engine/system indicators. Fully knowledgeable of performance charts and procedures required to obtain and record in-flight performance data. Fuel system usage and configuration IAW TOs and applicable directives. Recognized and corrected minor omissions or deviations. Recognized, reported, and properly documented out of limit conditions or malfunctions.
- 8.4.3.13.2. **Q-** Accomplished required checklists with minor errors, omissions, or deviations. Monitored flight parameters (i.e., altitudes, airspeeds, and clearances) with minor deviations. Monitored engine/system indicators with some deviations. Limited knowledge of performance charts and procedures required to obtain and/or record in-flight performance data. Limited knowledge of fuel system usage and configuration caused deviations from TOs and applicable directives. Slow to recognize, report, and/or document out of limit conditions or malfunctions.
- 8.4.3.13.3. **U.** Failed to accomplish required checklists or made numerous errors, omissions, or deviations. Failed to back up pilots on flight parameters (i.e., altitudes, airspeeds, and clearances). Failed to monitor engine/system indicators. Inadequate knowledge of performance charts and/or procedures required to obtain data for two or three engines operating. Had inadequate knowledge of fuel system usage and configuration. Allowed limitations to be exceeded, which, without correction, would cause damage to equipment.
- 8.4.3.14. **Area 212. Post-Flight.**

8.4.3.14.1. **Q.** Accomplished required checklists without errors, omissions, or deviations. Ensured aircraft properly configured for parking. [i.e., nose gear pin, ground wires (if applicable), intakes, door locks].

8.4.3.14.2. **Q-.** Accomplished required checklists with minor errors, omissions, or deviations. Minor errors ensuring aircraft properly configured for parking.

8.4.3.14.3. **U.** Failed to accomplish required checklists. Did not ensure aircraft was properly configured for parking.

8.4.3.15. Area 213. Mission Procedures. Flight Engineers will be verbally evaluated on mission knowledge. Actual mission profiles will be flown to the maximum extent possible. Applicable mission profiles may be published in the unit supplement to AFI 11-202, Vol 2. (T2)

8.4.3.15.1. **Q.** Was fully knowledgeable of unit mission procedures. Was knowledgeable of mission events. Demonstrated adequate situational awareness.

8.4.3.15.2. **Q-.** Had limited knowledge of unit mission procedures. Demonstrated limited knowledge of mission events. Limited situational awareness.

8.4.3.15.3. **U.** Inadequate knowledge of unit mission procedures. Had inadequate knowledge of mission events. Had inadequate situational awareness.

8.4.3.16. Area 214. Night Vision Goggle Usage/Limitations.

8.4.3.16.1. **Q.** Correctly described the use/limitations of NVGs. Properly pre-flighted and handled NVGs.

8.4.3.16.2. **Q-.** Minor omissions or deviations in describing the use/limitations of NVGs. Did not properly pre-flight, handle, or use NVGs, but caused no damage to equipment. Mission success not negatively affected.

8.4.3.16.3. **U.** Procedures for using NVGs were incorrect. Caused damage to equipment. Mission unsuccessful as a result of improper NVG usage.

8.4.3.17. Area 215. Air-to-Air Refueling System/Procedures.

8.4.3.17.1. **Q.** Was fully knowledgeable of AAR operations and procedures. Performed all pre-refueling, refueling, and post-refueling checks in accordance with applicable checklist and directives. Satisfactorily managed/monitored fuel systems and onload/offload distribution in accordance with procedures and techniques outlined in TOs, checklists and other directives. Correctly identified and located system components, explained and related their functions, and stated the limitations. Stated correct system status and its effect on related systems. Recognized malfunctions and applied proper corrective action(s).

8.4.3.17.2. **Q-.** Limited knowledge of AAR operations and procedures. Performed pre-refueling, refueling and post-refueling checks with some minor deviations/omissions that did not affect successful accomplishment of air refueling. Limited management/monitoring of fuel systems and onload distribution in accordance with procedures and techniques outlined in TOs, checklists and other directives. Limited knowledge of identification, locations, functions, and limitations of system components. Stated correct system status, but could not determine its

effect on related systems. Delay in recognizing malfunctions and/or applying proper corrective action(s).

8.4.3.17.3. **U.** Inadequate knowledge of AAR operations and procedures. Deviations/omissions could have affected successful mission accomplishment. Inadequate knowledge of fuel system management or exceeded wing fuel balance limitations. Could not identify, locate, or relate systems, functions, and limitations. Could not determine status of system or its effect on related systems. Failed to recognize malfunctions and/or apply corrective action(s).

8.4.3.18. **Area 216. Engine.**

8.4.3.19. **Area 217. Propeller.**

8.4.3.20. **Area 218. Fuel.**

8.4.3.21. **Area 219. Electrical.**

8.4.3.22. **Area 220. Hydraulic.**

8.4.3.23. **Area 221. Flight Controls/Flaps.**

8.4.3.24. **Area 222. Landing Gear/Brakes/Steering.**

8.4.3.25. **Area 223. Fire Detection/Extinguishing.**

8.4.3.26. **Area 224. Pneumatic/Bleed Air.**

8.4.3.27. **Area 225. Environmental/Air Conditioning.**

8.4.3.28. **Area 226. Pressurization/Depressurization.**

8.4.3.29. **Area 227. Anti-icing/De-icing.**

8.4.3.30. **Area 228. Lighting.**

8.4.3.31. **Area 229. Oxygen.**

8.4.3.32. **Area 230. APU/GTC.**

8.4.3.33. **Area 231. Doors/Hatches/Ramp.**

8.4.3.34. **Area 232. Windows/Windshields.**

8.4.3.35. **Area 233. Radio/Radar Systems.**

8.4.3.36. **Area 234. INS/SCNS.**

8.4.3.37. **Area 235. Reserved for future use.**

8.4.3.38. **Area 236. Voice Recorder/DFDR.**

8.4.3.39. **Area 237. Weapons.**

8.4.3.40. **Area 238. Aircraft Defensive Systems/Equipment.**

8.4.3.41. **Areas 216 through 238:** Use the grading criteria in the following subparagraphs:

8.4.3.41.1. **Q.** Demonstrated a complete knowledge of aircraft systems and operating limitations both with and without reference to TOs and/or available aids.

8.4.3.41.2. **Q-** Limited knowledge of aircraft systems operations and limitations in some areas. Used individual technique instead of procedures and was unaware of differences.

8.4.3.41.3. **U.** Unsatisfactory systems knowledge. Unable to demonstrate or explain the procedures for aircraft systems operations with or without reference to TOs and/or available aids.

8.4.3.42. **Area 239 – 249. Reserved for future use.**

Chapter 9

SENSOR OPERATOR EVALUATIONS

9.1. General. The criteria contained here and in [Chapter 2](#) apply to all Sensor Operator (SO) flight evaluations.

9.2. Performing Evaluator Duties.

9.2.1. Evaluators may administer initial, re-qualification, and/or periodic evaluations simultaneously to crew members operating two sensors.

9.2.2. Evaluators may simultaneously instruct a non-current SO while administering a flight evaluation to the other SO.

9.3. Requirements. Refer to [Chapter 2](#) for all evaluations. Instructors will demonstrate instructional ability on all periodic evaluations; refer to [Chapter 3](#) for instructor evaluation grading areas and criteria. SO specific areas are listed in this chapter. (T-2)

9.3.1. Initial, re-qualification, and recurring QUAL/MSN Evaluations will include General areas in [Chapter 2](#) and grading criteria in this chapter. Administer the evaluation on a sortie consisting of a live and dry fire. Tweak one gun as a minimum (auto trainable tweak and two-shot procedures mandatory). The dry fire portion will include a minimum of one interdiction target, a CAS/TIC scenario, and armed reconnaissance using an appropriate technique/method. See [Table 9.1](#) for exceptions to requirements. (T-2)

9.3.2. Dual-Qualified SOs may receive an evaluation from either sensor position (or both) during a periodic or re-qualification evaluation. **Note:** Dual-Qualified SOs unqualified in either position remain unqualified in all AC-130 missions until a re-qualification evaluation is successfully completed.

9.4. Special Qualification Evaluations and Simulator Evaluations. None.

9.5. Grading Criteria.

9.5.1. **Areas 1 through 19:** Use general grading criteria in [Chapter 2](#) of this volume. (T-2)

9.5.2. **Areas 20 through 29:** Use instructor evaluation grading criteria in [Chapter 3](#) of this volume (if applicable). (T-2)

9.5.3. **Areas 400 through 449:** The following subparagraphs contain the evaluation grading criteria for the grading areas listed in [Table 9.1](#).

9.5.3.1. **Area 400. System(s) Knowledge.**

9.5.3.1.1. **Q.** Displayed thorough knowledge of BDA recorder, Mission Computer Systems, and other systems/equipment associated with the SO crew position.

9.5.3.1.2. **Q-.** Displayed limited knowledge of BDA recorder, Mission Computer Systems, and other systems/equipment associated with the SO crew position.

9.5.3.1.3. **U.** Displayed inadequate knowledge of BDA recorder, Mission Computer Systems, and other systems/equipment associated with the SO crew position.

Table 9.1. Sensor Operator Grading Areas.

Area	Notes	Area Name
400	3	System(s) Knowledge
401	1	System(s) Operations
402	3, 4	Sensor Alignment
403	1	Scope Interpretation
404	1	Scope Orientation
405	1	Target Acquisition/Identification/Reacquisition
406	1	Target Tracking
407	1	Tweak/Strike Procedures
408	1	Target Scoring
409	1	Sensor Offset Shooting Procedures
410	1	Employment Safety (CRITICAL)
411	1	Close Air Support/Troops in Contact
412	3, 4	Armed Reconnaissance
413	3, 4	Defensive Procedures
414-449		Reserved for Future Use
Notes: 1. Required in-flight. 2. Required in-flight or simulator certified for this event. 3. Required in-flight or alternate method. 4. Required in-flight for initial qualification evaluations.		

9.5.3.2. Area 401. System(s) Operation.

9.5.3.2.1. **Q.** Demonstrated competent operation of BDA recorder, Mission Computer Systems, and other systems/equipment associated with the SO crew position IAW TOs and instructions.

9.5.3.2.2. **Q-.** Demonstrated partial proficiency that did not jeopardize mission accomplishment or flight safety while operating the BDA recorder, Mission Computer Systems, and other systems/equipment associated with the SO crew position.

9.5.3.2.3. **U.** Demonstrated unsatisfactory proficiency with the BDA recorder, Mission Computer Systems, and other systems/equipment associated with the SO crew position.

9.5.3.3. Area 402. Sensor Alignment.

9.5.3.3.1. **Q.** Acquired and tracked the alignment point. Completed air boresight, air alignment, sensor-to-sensor calibration, HUD-Sensor alignment, SADs/slaving checks, offset checks, and trainable gun checks IAW TOs and instructions.

9.5.3.3.2. **Q-** Acquired and tracked the alignment point but not to the desired speed or proficiency. Completed air boresight, air alignment, sensor-to-sensor calibration, HUD-Sensor alignment, SADs/slaving checks, offset checks, and trainable gun checks IAW TOs and instructions, but not to the desired speed or proficiency. Examinee did not jeopardize mission accomplishment or flight safety.

9.5.3.3.3. **U.** Failed to properly acquire and/or track the alignment point. Failed to properly complete the air boresight, air alignment, sensor-to-sensor calibration, HUD-Sensor alignment, SADs/slaving checks, offset checks, and trainable gun checks IAW TOs and instructions. Mission accomplishment and/or flight safety was jeopardized.

9.5.3.4. Area 403. Scope Interpretation.

9.5.3.4.1. **Q.** Able to distinguish the difference between man-made and natural objects. Able to identify target types for land, sea, and air based weapons systems, both friendly and other.

9.5.3.4.2. **Q-** Able to distinguish the difference between man-made and natural objects, but not to the desired speed or proficiency. Partially able to identify target types for land, sea, and air based weapons systems, both friendly and other. Examinee did not jeopardize mission accomplishment or flight safety.

9.5.3.4.3. **U.** Failed to distinguish the difference between man-made and natural objects. Unable to identify target types for land, sea, and air based weapons systems, friendly or other. Mission accomplishment and/or flight safety was jeopardized.

9.5.3.5. Area 404. Scope Orientation.

9.5.3.5.1. **Q.** Using charts/imagery/text or verbal descriptions, demonstrated the ability to acquire and maintain situational awareness with the sensor system, while keeping track of the aircraft position and heading relative to targets, threats, and friendly locations.

9.5.3.5.2. **Q-** Utilized charts/imagery/text or verbal descriptions to acquire and maintain situational awareness with the sensor system, while monitoring aircraft position and heading relative to targets, threats, and friendly locations, but not to the desired speed or proficiency. Examinee caused minor delays to mission accomplishment but did not jeopardize flight safety.

9.5.3.5.3. **U.** Examinee was unable to acquire or maintain situational awareness with the sensor system, while keeping track of the aircraft position and heading relative to targets, threats, and friendly locations. Mission accomplishment and/or flight safety was jeopardized.

9.5.3.6. Area 405. Target Acquisition, Identification, and Reacquisition.

9.5.3.6.1. **Q.** Using charts/imagery/text or verbal descriptions, demonstrated the ability to acquire and identify targets/confirmation points (minimum target size = 2 mr \pm 1 mr) prior to the aircraft attaining the tangent of the attack circle (rolling-in). Performed reacquisition of previously identified targets/confirmation points as required by mission needs without delaying mission accomplishment or jeopardizing flight safety.

9.5.3.6.2. **Q-** Minor difficulty using charts/imagery/text or verbal descriptions to acquire and identify targets/confirmation points (minimum target size = 2 mr \pm 1 mr) prior to the aircraft attaining the tangent of the attack circle (rolling-in). Performed reacquisition of previously identified targets/confirmation points as required by mission needs, but not to the desired levels of speed and proficiency. Mission accomplishment and flight safety not jeopardized.

9.5.3.6.3. **U.** Examinee failed to acquire and/or identify targets/confirmation points (minimum target size = 2 mr \pm 1 mr) prior to the aircraft attaining the tangent of the attack circle (rolling-in). Examinee failed to reacquire previously identified targets/confirmation points as required by mission needs. Caused significant mission delays and/or jeopardized flight safety.

9.5.3.7. Area 406. Target Tracking.

9.5.3.7.1. **Q.** Tracked all targets to an accuracy of 0.5 mr.

9.5.3.7.2. **Q-** Examinee's tracking deviated up to but not greater than 1 mr.

9.5.3.7.3. **U.** Examinee's tracking was erratic and deviated greater than 1 mr.

9.5.3.8. Area 407. Tweak/Strike Procedures.

9.5.3.8.1. **Q.** Performed trainable/combat/fixed tweaks of the AC-130 weapon system(s) as required by TOs and instructions. Performed DTA procedure(s) IAW TOs and instructions.

9.5.3.8.2. **Q-** Performed trainable/combat/fixed tweaks of the AC-130 weapon system(s) as required by TOs and instructions with minor errors and not to the desired levels of proficiency and/or desired speeds. Performed DTA procedure(s) IAW TOs and instructions, but not to the desired levels of proficiency and/or desired speed. Mission accomplishment not significantly affected and flight safety not jeopardized.

9.5.3.8.3. **U.** Failed to perform trainable/combat/fixed tweaks of the AC-130 weapon system(s) IAW TOs and instructions. Failed to perform DTA procedure(s) IAW TOs and instructions. Mission accomplishment was significantly affected and/or flight safety was jeopardized.

9.5.3.9. Area 408. Target Scoring.

9.5.3.9.1. **Q.** Called all observed rounds impacts to an accuracy of \pm 0.5 mr.

9.5.3.9.2. **Q-** Called all observed round impacts to an accuracy of \pm 1 mr.

9.5.3.9.3. **U.** Examinee failed to make shot calls or calls were consistently greater than 1 mr.

9.5.3.10. Area 409. Sensor Offset Shooting Procedures.

9.5.3.10.1. **Q.** Performed Sensor Offset Shooting procedures with the AC-130 weapon system(s) in a timely and effective manner.

9.5.3.10.2. **Q-** Performed Sensor Offset Shooting procedures with the AC-130 weapon system(s), but not to the desired speed or proficiency; caused minor delays in mission accomplishment. Flight safety was not jeopardized.

9.5.3.10.3. **U.** Examinee was unable to perform Sensor Offset Shooting procedures with the AC-130 weapon system(s) in a timely and effective manner. Mission accomplishment was significantly affected and/or flight safety was jeopardized.

9.5.3.11. Area 410. Employment Safety (CRITICAL).

9.5.3.11.1. **Q.** Demonstrated safe usage of consent throughout the flight. Performed all simulated, live-fire weapons-delivery, and laser operations safely and IAW applicable TOs and instructions. Safely followed applicable range procedures.

9.5.3.11.2. **U.** Failed to demonstrate safe usage of consent throughout the flight. Did not perform all simulated/live-fire weapons-delivery, and laser operations safely and IAW applicable TOs and instructions. Mission accomplishment was significantly affected and/or flight safety was jeopardized. Failed to safely follow applicable range procedures.

9.5.3.12. Area 411. Close Air Support/Troops in Contact.

9.5.3.12.1. **Q.** Demonstrated effective/timely knowledge and performance of CAS/TIC procedures. Used range/bearing, laser sparkle, marking devices, and/or incoming radio, to determine the position of friendly forces versus target locations(s). Performed all manual offsets in a timely and accurate manner in order to locate the required targets/friendly forces. Coordinated with crew to ensure timely and accurate firepower to support friendly units or TIC.

9.5.3.12.2. **Q-.** Examinee demonstrated CAS/TIC procedures, but not to the desired levels of knowledge and performance. Used range/bearing, laser sparkle, marking devices, and/or incoming radio, to determine the position of friendly forces versus target locations(s), but not to the desired levels of proficiency and/or desired speed. Performed manual offsets to locate targets/friendly forces, but not to the desired levels of proficiency and/or desired speed. Crew coordination was not as timely as desired but did not significantly delay mission and/or support to friendly units or TIC. Flight safety or the safety of ground parties was not jeopardized.

9.5.3.12.3. **U.** Failed to successfully perform CAS tasking. Misidentified or failed to locate friendly forces and/or enemy forces. Failed to follow AFI 11-2AC-130V3 "Danger Close" guidance. Engaged wrong target and/or friendly positions. Lack of knowledge and/or performance resulted in delayed fire support to such an extent, that fire support did not achieve mission objective. Flight safety or the safety of ground parties was jeopardized.

9.5.3.13. Area 412. Armed Reconnaissance.

9.5.3.13.1. **Q.** Performed the tasks associated with locating and attacking targets of opportunity along lines of communication (LOCs), using appropriate search methods/guidance techniques.

9.5.3.13.2. **Q-.** Performed the tasks associated with locating and attacking targets of opportunity along LOCs, but not to desired levels of proficiency and/or desired speeds. Maintained the aircraft in a favorable position to fire most of the time/did not always position the aircraft to facilitate either reconnaissance or movement from

point-to-point in an expeditious manner. Mission accomplishment was not significantly affected and/or flight safety was not jeopardized.

9.5.3.13.3. **U.** Examinee failed to perform the tasks associated with locating and attacking targets of opportunity along LOCs. Mission accomplishment was significantly affected and/or flight safety was jeopardized.

9.5.3.14. Area 413. Defensive Procedures.

9.5.3.14.1. **Q.** Performed and demonstrated knowledge of aircraft defensive systems and sensor specific actions/tactics.

9.5.3.14.2. **Q-.** Performed and demonstrated knowledge of aircraft defensive systems and sensor specific actions/tactics, but not to the desired levels of proficiency and/or desired speeds with minor errors. Mission accomplishment was not significantly affected and/or flight safety was not jeopardized.

9.5.3.14.3. **U.** Failed to perform/demonstrate knowledge of aircraft defensive systems and sensor specific actions/tactics. Mission accomplishment was significantly affected and/or flight safety was jeopardized.

9.5.3.15. Areas 414 - 449. Reserved for Future Use.

Chapter 10

LOADMASTER EVALUATIONS

10.1. General. Mission qualified loadmasters require a combined qualification and mission evaluation. After completion of the appropriate training, loadmasters may receive a QUAL evaluation enabling them to fly on non-mission sorties (i.e., no dry/live fire). Loadmaster evaluations and events will be accomplished in the aircraft except as listed in **Table 10.1**. (T-2)

10.2. Requirements. Refer to **Chapter 2** for all evaluations. Instructors will demonstrate instructional ability on all periodic evaluations; refer to **Chapter 3** for instructor evaluation grading areas and criteria. Loadmaster specific areas are listed in this chapter. (T-2)

10.3. QUAL/MSN Evaluations. Accomplish on any flight profile except Pilot Proficiency Flights, Functional Check Flight, and Acceptance Check Flights. In addition to areas listed in **Table 2.1** and **Table 3.1**, evaluations will include areas listed in **Table 10.1**. (T-2)

10.3.1. Initial and Requalification. Administer the evaluation on a live fire mission to include as a minimum; a complete aircraft preflight, completion of the applicable weight and balance forms, one mission leg, hot cargo procedures, scanning, threat calls, operating defensive systems, and an aircraft post-flight. Credit the evaluation if the live fire portion of the mission cancels after takeoff. For BAQ loadmasters attaining mission status, a QUAL evaluation may be conducted in conjunction with the INIT or RQ MSN evaluation. (T-2)

10.3.2. Periodic. Conduct the QUAL/MSN evaluation in the eligibility period corresponding to the earliest expiration date. Requirements are the same as the initial evaluation, except the evaluation may be administered on a dry fire mission. (T-2)

10.4. Grading Criteria.

10.4.1. **Areas 1 through 19:** Use general grading criteria in **Chapter 2** of this volume. (T-2)

10.4.2. **Areas 20 through 29:** Use instructor evaluation grading criteria in **Chapter 3** of this volume (if applicable). (T-2)

10.4.3. **Areas 250 through 299:** The following subparagraphs contain the evaluation grading criteria for the grading areas listed in **Table 10.1**.

10.4.3.1. Area 250. Aircraft Limitations.

10.4.3.1.1. **Q.** Correctly stated, understood, and could apply the correct limitations associated with the aircraft, and associated equipment.

10.4.3.1.2. **Q-.** Had difficulty stating correct limitations, or locating limitations in TOs.

10.4.3.1.3. **U.** Failed to state various limitations, or could not locate correct limitations in TOs.

10.4.3.2. Area 251. Interior Lighting.

10.4.3.2.1. **Q.** Demonstrated/Identified lighting equipment and proper use of interior lighting for appropriate missions.

10.4.3.2.2. **Q-** Had difficulty demonstrating/identifying lighting equipment and proper use of interior lighting for appropriate missions.

10.4.3.2.3. **U.** Failed to demonstrate/identify lighting equipment and proper use of interior lighting for appropriate missions.

Table 10.1. Loadmaster Grading Areas.

Area	Notes	Area Name
250	1, 3	Aircraft Limitations
251	1	Interior Lighting
252	1	Weight and Balance
253	1, 3	Border Clearance
254	1	Aircraft Configuration
255	1, 3	Emergency Equipment
256	1, 3	Systems Knowledge
257	1	Proper Tie-down
258	1	Equipment Stowed
259	2	Life Support Equipment
260	2, 3	Engine Running Offload/Onload (ERO)
261	2	Hot Cargo/Munitions Handling-Up/Download Procedures
262	2	Interphone Procedures
263	2	Scanner Duties
264	2	Pre-strike
265	2	Strike
266	2, 3	Defensive Systems
267	2	Post-strike
268	2, 3	Passenger Handling
269	2, 3	Air-to-Air Refueling
270	2, 3	Pyrotechnics
271-299		Reserved for future use
Notes: 1. Required for QUAL portion of flight evaluations 2. Required for MSN portion of flight evaluations 3. Area may be demonstrated or verbally evaluated		

10.4.3.3. Area 252. Weight and Balance.

10.4.3.3.1. **Q.** Knowledge of aircraft limitations and weight and balance directives was satisfactory. Completed DD Form 365-4, *Weight and Balance Clearance Form Transport/Tactical*, legibly and accurately with only minor errors.

10.4.3.3.1.1. Takeoff or landing gross weights: \pm 500 lbs.

10.4.3.3.1.2. Percent of Mean Aerodynamic Chord (MAC): \pm 0.5 percent.

10.4.3.3.1.3. Aircraft gross takeoff limits: Not exceeded.

10.4.3.3.1.4. Center of gravity limitations: Not exceeded.

10.4.3.3.2. **Q-** Limited knowledge of aircraft limitations, weight and balance directives. Had difficulty completing DD Form 365-4 legibly. Form F errors within criteria listed below.

10.4.3.3.2.1. Takeoff or landing gross weights: \pm 501 to 1,000 lbs.

10.4.3.3.2.2. Percent of MAC: \pm 0.6 to 1.0 percent.

10.4.3.3.2.3. Aircraft gross takeoff limits: Not exceeded.

10.4.3.3.2.4. Center of gravity limitations: Not exceeded.

10.4.3.3.3. **U.** Knowledge of aircraft limitations and weight and balance directives was inadequate. Failed to complete DD Form 365-4 accurately. Exceeded Q-criteria.

10.4.3.4. Area 253. Border Clearance.

10.4.3.4.1. **Q.** Correctly followed command guidelines. Completed/explained border clearance requirements..

10.4.3.4.2. **Q-** Difficulty explaining border clearance requirements. Minor mistakes degraded effectiveness.

10.4.3.4.3. **U.** Could not accurately complete forms. Unaware of command guidance, or could not explain requirements.

10.4.3.5. Area 254. Aircraft Configuration.

10.4.3.5.1. **Q.** Ensured the aircraft was properly configured to support mission requirements. Familiar with various configurations for the model of aircraft flown. Properly stowed configuration items that were not used.

10.4.3.5.2. **Q-** Difficulty configuring the aircraft but did not impede mission. Limited knowledge of various configurations for the model of aircraft flown.

10.4.3.5.3. **U.** Failed to ensure proper aircraft configuration or caused mission delays. Had unsatisfactory knowledge of configurations. Failed to properly stow configuration items.

10.4.3.6. Area 255. Emergency Equipment.

10.4.3.6.1. **Q.** Located, inspected and/or demonstrated the proper use of aircraft emergency equipment. Satisfactory knowledge of equipment.

10.4.3.6.2. **Q-** Difficulty locating, inspecting, and/or demonstrating the proper use of emergency equipment. Adequate knowledge of equipment, but needs improvement.

10.4.3.6.3. **U.** Failed to locate, inspect and/or demonstrate the proper use of aircraft emergency equipment and systems. Unsatisfactory knowledge of equipment.

10.4.3.7. Area 256. Systems Knowledge.

10.4.3.7.1. **Q.** Displayed satisfactory knowledge of systems, ensuring satisfactory operation within prescribed limits. Explained proper corrective action for each type of malfunction.

10.4.3.7.2. **Q-.** Difficulty in displaying a satisfactory knowledge of systems. Slow to analyze problems or apply proper corrective actions.

10.4.3.7.3. **U.** Failed to display a satisfactory knowledge of systems. Unable to analyze problems or apply proper corrective actions.

10.4.3.8. Area 257. Proper Tie-Down.

10.4.3.8.1. **Q.** Correctly calculated and applied correct amount of restraint to a given item. Understood and could state the principals of restraint.

10.4.3.8.2. **Q-.** Difficulty calculating or applying the correct amount of restraint. Did not fully understand the principals of restraint.

10.4.3.8.3. **U.** Failed to correctly calculate or apply the correct amount of restraint. Did not understand and could not state the principals of restraint.

10.4.3.9. Area 258. Equipment Stowed.

10.4.3.9.1. **Q.** Correctly identified/stowed aircraft equipment in its proper location.

10.4.3.9.2. **Q-.** Had difficulty identifying/stowing aircraft equipment in its proper location.

10.4.3.9.3. **U.** Failed to identify/stow equipment in its proper location.

10.4.3.10. Area 259. Life Support Equipment.

10.4.3.10.1. **Q.** Located, inspected, distributed and/or demonstrated the proper use of life support. Satisfactory knowledge of equipment.

10.4.3.10.2. **Q-.** Difficulty locating, inspecting, and/or demonstrating the proper use of life support. Adequate knowledge of equipment, but needs improvement.

10.4.3.10.3. **U.** Failed to inspect, distribute and/or demonstrate the proper use of life support. Unsatisfactory knowledge of equipment.

10.4.3.11. Area 260. Engine Running Offload/Onload (ERO).

10.4.3.11.1. **Q.** Followed/explained proper procedures for ERO.

10.4.3.11.2. **Q-.** Difficulty following/explaining proper ERO procedures.

10.4.3.11.3. **U.** Did not follow/could not explain proper ERO procedures.

10.4.3.12. Area 261. Hot Cargo/Munitions Handling-Up/Download Procedures.

10.4.3.12.1. **Q.** Followed/explained proper procedures for hot cargo/munitions handling-up/download operations.

10.4.3.12.2. **Q-.** Difficulty following/explaining proper procedures for hot cargo/munitions handling-up/download operations.

10.4.3.12.3. **U.** Did not follow/explain proper procedures for hot cargo/munitions handling-up/download operations.

10.4.3.13. Area 262. Interphone Procedures.

- 10.4.3.13.1. **Q.** Followed/explained proper interphone procedures.
- 10.4.3.13.2. **Q-.** Difficulty following/explaining proper interphone procedures.
- 10.4.3.13.3. **U.** Did not follow/explain proper interphone procedures.

10.4.3.14. Area 263. Scanner Duties.

- 10.4.3.14.1. **Q.** Demonstrated/explained proper procedures for conducting scanner duties.
- 10.4.3.14.2. **Q-.** Difficulty demonstrating/explaining proper procedures for conducting scanner duties.
- 10.4.3.14.3. **U.** Failed to demonstrate/explain proper procedures for conducting scanner duties.

10.4.3.15. Area 264. Pre-Strike.

- 10.4.3.15.1. **Q.** Demonstrated/explained proper pre-strike duties and procedures.
- 10.4.3.15.2. **Q-.** Difficulty demonstrating/explaining proper pre-strike duties and procedures.
- 10.4.3.15.3. **U.** Failed to demonstrate/explain proper pre-strike duties and procedures.

10.4.3.16. Area 265. Strike.

- 10.4.3.16.1. **Q.** Demonstrated/explained proper strike duties and procedures.
- 10.4.3.16.2. **Q-.** Difficulty demonstrating/explaining proper strike duties and procedures.
- 10.4.3.16.3. **U.** Failed to demonstrate/explain proper strike duties and procedures.

10.4.3.17. Area 266. Defensive Systems.

- 10.4.3.17.1. **Q.** Identified/explained aircraft defensive systems.
- 10.4.3.17.2. **Q-.** Difficulty identifying/explaining aircraft defensive systems.
- 10.4.3.17.3. **U.** Failed to identify/explain aircraft defensive systems.

10.4.3.18. Area 267. Post-Strike.

- 10.4.3.18.1. **Q.** Demonstrated/explained proper post-strike duties and procedures.
- 10.4.3.18.2. **Q-.** Difficulty demonstrating/explaining proper post-strike duties and procedures.
- 10.4.3.18.3. **U.** Failed to demonstrate/explain proper post-strike duties and procedures.

10.4.3.19. Area 268. Passenger Handling.

- 10.4.3.19.1. **Q.** Correctly briefed and performed passenger handling procedures.

10.4.3.19.2. **Q-** Had difficulty briefing and/or performing passenger handling procedures.

10.4.3.19.3. **U.** Failed to brief and/or did not perform proper passenger handling procedures.

10.4.3.20. Area 269. Air-to-Air Refueling.

10.4.3.20.1. **Q.** Satisfactory knowledge of air-to-air refueling procedures. Adequate knowledge of air-to-air refueling system components and locations. Accomplished all air-to-air refueling procedures, including leak checks during contact, IAW with approved checklist and directives. Properly configured the aircraft prior to completion of the preparation for contact checklist.

10.4.3.20.2. **Q-** Limited knowledge of air-to-air refueling procedures. Limited knowledge of air-to-air refueling system components and locations. Accomplished air-to-air refueling procedures with minor errors, omissions, or deviations. Performed limited checks during contact. Performed aircraft configuration with minor errors or omissions that did not affect successful mission accomplishment.

10.4.3.20.3. **U.** Had inadequate knowledge of air-to-air refueling procedures, system components and/or locations. Major errors, omissions, or deviations in procedures could have affected safety of flight. Failed to properly configure aircraft before completion of preparation for contact checklist. Failed to perform required checks during contact.

10.4.3.21. Area 270. Pyrotechnics.

10.4.3.21.1. **Q.** Thorough knowledge of pyrotechnics. Could identify the appropriate pyrotechnics for the mission. Satisfactory knowledge of ground and in-flight emergency procedures.

10.4.3.21.2. **Q-** Limited knowledge of pyrotechnics. Did not always correctly identify the most efficient pyrotechnics for the mission, but safety was not affected.

10.4.3.21.3. **U.** Lacked knowledge of pyrotechnics. Could not identify appropriate pyrotechnics for the mission. Inadequate knowledge of emergency procedures; compromised safety.

10.4.3.22. 271-299. Reserved for future use.

Chapter 11

AERIAL GUNNER (AG) EVALUATIONS

11.1. General. The criteria contained here and in **Chapter 2** apply to all aerial gunner flight evaluations. AGs require a combined qualification and mission evaluation. (T-2)

11.2. Requirements. Refer to **Chapter 2** for all evaluations. Instructors will demonstrate instructional ability on all periodic evaluations; refer to **Chapter 3** for instructor evaluation grading areas and criteria. Aerial gunner specific areas are listed in this chapter. (T-2)

11.2.1. Initial/Requalification. Conduct INIT or RQ QUAL/MSN evaluations on sorties consisting of both live and dry fire missions. Comply with formal school course guidance if available. Evaluations will include **General** areas in **Chapter 2** and grading criteria in this chapter. Examinees will operate 40mm and 105mm gun systems during all flight phases from pre-flight to post-strike. The 25mm gun system may be evaluated via alternate method. (T-2)

11.2.2. Periodic Qualification/Mission. Periodic QUAL/MSN evaluations will include all **General** areas in **Chapter 2** and grading criteria in this chapter. Live fire procedures are required on all periodic evaluations. Examinees will operate a minimum of two gun systems (AC-130U) or one gun system (AC-130H) during all flight phases from pre-flight to post-strike. (T-2)

11.2.3. Requisites. The following are requisites for all evaluations: Open and closed book (or formal school end-of-course) examinations, BOLDFACE, and EPE.

11.2.4. Special Qualification and Simulator Evaluations. Not applicable.

Table 11.1. Aerial Gunner Evaluation Criteria.

Area	Notes	Grading Areas
450	3	Trainable Weapons Check
451	3	Sensor Alignment (AC-130H)
452	3	Pressurization/Depressurization (AC-130U)
453	3	Pre-strike
454	1	Gun Firing Operations
455	3	Post-strike
456	3	System Knowledge
457	3	Weapons Malfunctions
458	3	Visual Inspection
459-499		Reserved for future use
Notes: 1. Required in-flight. 2. Required in-flight or simulator certified for this event. 3. Required in-flight or alternate method.		

11.3. Grading Criteria.

11.3.1. **Areas 1 through 19:** Use general grading criteria in **Chapter 2** of this volume. (T-2)

11.3.2. **Areas 20 through 29:** Use instructor grading criteria in **Chapter 3** (if applicable). (T2)

11.3.3. **Areas 450-499:** The following paragraphs contain grading criteria for **Table 11.1**.

11.3.3.1. Area 450. Trainable Weapons Check.

11.3.3.1.1. **Q.** Completed trainable weapons check IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

11.3.3.1.2. **Q-.** Minor deviations from established trainable weapons check. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.1.3. **U.** Could not conduct satisfactory trainable weapons checks, to include all critical components. Individual technique was unsafe and/or violated established procedures.

11.3.3.2. Area 451. Sensor Alignment (AC-130H).

11.3.3.2.1. **Q.** Completed sensor alignment IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

11.3.3.2.2. **Q-.** Minor deviations from established sensor alignment procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.2.3. **U.** Could not conduct a satisfactory sensor alignment, to include all critical components. Individual technique was unsafe and/or violated established procedures.

11.3.3.3. Area 452. Pressurization/Depressurization (AC-130U).

11.3.3.3.1. **Q.** Completed pressurization/depressurization IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

11.3.3.3.2. **Q-.** Minor deviations from established pressurization/depressurization procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.3.3. **U.** Could not conduct a satisfactory pressurization/depressurization, to include all critical components. Individual technique was unsafe and/or violated established procedures.

11.3.3.4. Area 453. Pre-Strike.

11.3.3.4.1. **Q.** Completed pre-strike IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

11.3.3.4.2. **Q-** Minor deviations from established pre-strike procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.4.3. **U.** Could not conduct a satisfactory prestrike, to include all critical components. Individual technique was unsafe and/or violated established procedures.

11.3.3.5. Area 454. Gun Firing Operations.

11.3.3.5.1. **Q.** Completed gun firing operations IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

11.3.3.5.2. **Q-** Minor deviations from established gun firing operations. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.5.3. **U.** Could not satisfactorily conduct gun firing operations, to include all critical components. Individual technique was unsafe and/or violated established procedures.

11.3.3.6. Area 455. Post-Strike.

11.3.3.6.1. **Q.** Completed post-strike IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

11.3.3.6.2. **Q-** Minor deviations from established post-strike procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.6.3. **U.** Could not conduct a satisfactory post-strike, to include all critical components. Individual technique was unsafe and/or violated established procedures.

11.3.3.7. Area 456. System Knowledge.

11.3.3.7.1. **Q.** Displayed thorough knowledge of applicable weapons systems and subsystems to include, 105mm, 40mm, and 25mm weapons, trainable gun mounts, weapon loader control panels, and associated electronic and hydraulic equipment systems.

11.3.3.7.2. **Q-** Displayed limited knowledge of applicable weapons systems and subsystems to include, 105mm, 40mm, and 25mm weapons, trainable gun mounts, weapon loader control panels, and associated electronic and hydraulic equipment systems.

11.3.3.7.3. **U.** Displayed inadequate knowledge of applicable weapons systems and subsystems to include, 105mm, 40mm, and 25mm weapons, trainable gun mounts, weapon loader control panels, and associated electronic and hydraulic equipment systems.

11.3.3.8. Area 457. Weapons Malfunctions.

11.3.3.8.1. **Q.** Able to identify and quickly/efficiently clear all weapons malfunctions IAW tech orders, checklist and instructions. Additionally, examinee demonstrated through knowledge on all possible causes for malfunctions. Individual technique complied with established procedures.

11.3.3.8.2. **Q-** Misidentified malfunction(s), but used the correct procedure to clear weapon. Unsure of possible causes. Non-critical steps to clear malfunction performed out of sequence. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.8.3. **U.** Incorrect procedures used to clear malfunction. Does not know possible causes for malfunctions. Performed critical steps out of sequence or could not clear malfunction in a satisfactory manner. Individual technique was unsafe and/or violated established procedures.

11.3.3.9. Area 458. Visual Inspection.

11.3.3.9.1. **Q.** Completed visual inspection IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

11.3.3.9.2. **Q-** Minor deviations from established visual inspection procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

11.3.3.9.3. **U.** Failed visual inspection critical component or could not conduct a satisfactory visual inspection. Individual technique was unsafe and/or violated established procedures.

11.3.3.10. Areas 459 – 499: Reserved for future use.

Chapter 12

DIRECT SUPPORT OPERATORS

12.1. General. Direct Support Operators (DSOs) require a combined qualification and mission evaluation. Instructors will demonstrate instructional ability on all periodic evaluations. (T-2) Refer to AFSOCI 11-2DSO, Vol 2, *Direct Support Operator Aircrew Evaluation Criteria*.

12.2. Requirements. Refer to [Chapter 2](#) for all evaluations. Refer to [Chapter 3](#) for instructor evaluation grading areas and criteria. DSO specific areas are listed in this chapter. (T-2)

12.3. Qualification/Mission Evaluations. See [Table 12.1](#) for required evaluation areas. Requirements for periodic evaluations are the same as initial/re-qualification evaluations. (T-2)

12.3.1. Requirements. Required events include: a complete equipment pre-flight; a flight profile that includes a realistic threat scenario; at least one aircraft defensive maneuver during any portion of a tactical mission in which the DSO provides input; and post-flight procedures. Any mission in an actual threat environment will satisfy same requirements. (T-2)

12.4. Grading Criteria.

Table 12.1. Direct Support Operator Evaluation Criteria.

Area	Notes	Area Name
500	3	Control of Classified Material
501	3	Communications Surveillance Suite (CSS) Operation
502	3	Tactical Data Receiver (TDR) Operation
503	3	GPS Operation
504	3	Threat Knowledge
505	1	Threat Analysis
506	1	Threat Reporting
507	3	Defensive Systems
508	1	Mission Operations
509-549		Reserved for future use
Notes: 1. Required in-flight. 2. Required in-flight or simulator certified for this event. 3. Required in-flight or alternate method.		

12.4.1. **Areas 1 through 19:** Use general grading criteria in [Chapter 2](#) of this volume. (T-2)

12.4.2. **Areas 20 through 29:** Use instructor grading criteria in [Chapter 3](#) (if applicable). (T2)

12.4.3. **Areas 500 through 549:** The following subparagraphs contain the evaluation grading criteria for the grading areas listed in [Table 12.1](#).

12.4.3.1. **Area 500. Control of Classified Material.**

12.4.3.1.1. **Q.** Acquired, inventoried, maintained positive control, and/or demonstrated the proper use and storage of classified material, equipment, and information. Satisfactory knowledge of all procedures, including destruction.

12.4.3.1.2. **Q-.** Difficulty acquiring, inventorying, maintaining positive control and/or demonstrating the proper use of classified material, equipment, and information. Adequate knowledge of procedures but needs improvement.

12.4.3.1.3. **U.** Failed to acquire, inventory, maintain positive control and/or demonstrate proper use of classified material, equipment, and information. Inadequate knowledge of procedures.

12.4.3.2. Area 501. CSS Operation.

12.4.3.2.1. **Q.** Demonstrated proper execution of frequency spectrum scans, discrete frequency searches and manual operations employing all assets of the CSS applicable to operator's mission area. Demonstrated ability to use different pieces of CSS equipment in tandem. Satisfactory knowledge of CSS hardware and software operations, installation, and troubleshooting.

12.4.3.2.2. **Q-.** Difficulty demonstrating proper execution of frequency spectrum scans, discrete frequency searches and manual operations employing all assets of the CSS applicable to operator's mission area. Difficulty using different pieces of CSS equipment simultaneously. Adequate knowledge of CSS equipment hardware and software operations, installation, and troubleshooting, but needs improvement.

12.4.3.2.3. **U.** Failed to demonstrate proper execution of frequency spectrum scans, discrete frequency searches and manual operations employing all assets of the CSS as applicable to operator's mission area. Failed to use different pieces of CSS equipment in tandem. Inadequate knowledge of CSS hardware and software operations, installation, and troubleshooting.

12.4.3.3. Area 502. Tactical Data Receiver (TDR) Operation.

12.4.3.3.1. **Q.** Demonstrated proper set-up and use of the Tactical Data Receiver as applicable to operator's mission area. Configured TDR and applicable software within a satisfactory amount of time. Extracted TDR information pertinent to the mission. Satisfactory knowledge of TDR equipment hardware and software operations, installation, and troubleshooting.

12.4.3.3.2. **Q-.** Difficulty demonstrating proper set-up and use of the Tactical Data Receiver as applicable to operator's mission area. Configured TDR and applicable software within a satisfactory amount of time, but needs improvement. Extracted TDR information pertinent to the mission but needs improvement. Adequate knowledge of TDR equipment hardware and software operations, installation, and troubleshooting, but needs improvement.

12.4.3.3.3. **U.** Failed to set-up and use of the Tactical Data Receiver as applicable to operator's mission area. Failed to configure TDR and/or applicable software within a satisfactory amount of time. Unable to extract TDR information pertinent to the mission. Unsatisfactory knowledge of TDR equipment hardware and software operations, installation, and troubleshooting.

12.4.3.4. Area 503. GPS Operation.

12.4.3.4.1. **Q.** Demonstrated proper set-up and use of the Global Positioning System in conjunction with navigational software. Demonstrated use of the GPS as an aid to situational awareness. Integrated GPS information into CSS and TDR operations. Satisfactory knowledge of GPS equipment hardware and software operations, installation, and troubleshooting.

12.4.3.4.2. **Q-.** Difficulty demonstrating proper set-up and use of the Global Positioning System in conjunction with navigational software. Difficulty demonstrating use of the GPS as an aid to situational awareness. Difficulty integrating GPS information into CSS and TDR operations. Adequate knowledge of GPS equipment hardware and software operations, installation, and troubleshooting, but needs improvement.

12.4.3.4.3. **U.** Failed to set-up and use the Global Positioning System in conjunction with navigational software. Failed to use the GPS as an aid to situational awareness. Unable to integrate GPS information into CSS and TDR operations. Unsatisfactory knowledge of GPS equipment hardware and software operations, installation, and troubleshooting.

12.4.3.5. Area 504. Threat Knowledge.

12.4.3.5.1. **Q.** Demonstrated knowledge of characteristics, procedures, and capabilities associated with threats to the aircraft as applicable to the operator's mission area. Demonstrated knowledge of SILENT SHIELD equipment capabilities/limitations to threats. Satisfactory overall threat knowledge.

12.4.3.5.2. **Q-.** Demonstrated adequate knowledge of characteristics, procedures, and capabilities associated with threats to the aircraft as applicable to the operator's mission area, but needs improvement. Demonstrated only basic knowledge of SILENT SHIELD equipment capabilities/limitations to threats. Adequate overall threat knowledge but needs improvement.

12.4.3.5.3. **U.** Demonstrated insufficient knowledge of characteristics, procedures, and capabilities associated with threats to the aircraft as applicable to the operator's mission area. Demonstrated a lack of knowledge of SILENT SHIELD equipment capabilities/limitations to threats. Unsatisfactory overall threat knowledge.

12.4.3.6. Area 505. Threat Analysis.

12.4.3.6.1. **Q.** Demonstrated the ability to prioritize equipment resources against threats, based on location and level of threat to the aircraft.

12.4.3.6.2. **Q-.** Difficulty prioritizing equipment resources against threats based on location and level of threat to the aircraft.

12.4.3.6.3. **U.** Failed to prioritize equipment resources against threats based on location and level of threat to the aircraft.

12.4.3.7. Area 506. Threat Reporting.

12.4.3.7.1. **Q.** Demonstrated ability to relay appropriate situational awareness or threat-related information affecting the safety of the aircraft or its mission to the

appropriate crew member in a timely manner. Threat calls excluded extraneous information and met acceptable standards for clarity and brevity. Demonstrated ability to extract essential elements of information (EEIs) and intelligence pertinent to technical reporting.

12.4.3.7.2. **Q-** Demonstrated ability to relay appropriate situational awareness or threat-related information affecting the safety of the aircraft or its mission to the appropriate crew member, but needs improvement in timeliness, clarity, and/or brevity. Threat calls included some extraneous information not pertinent to the aircraft and/or mission, but the overall mission was not impacted. Difficulty extracting EEIs and intelligence pertinent to technical reporting.

12.4.3.7.3. **U.** Failed to relay appropriate situational awareness or threat-related information affecting the safety of the aircraft or its mission to the appropriate crew member in a timely manner. Threat calls included extraneous information and fell below acceptable standards for clarity and brevity. Inadequate threat reporting negatively impacted the mission. Failed to extract EEIs and intelligence pertinent to technical reporting.

12.4.3.8. **Area 507. Defensive Systems.**

12.4.3.8.1. **Q.** Demonstrated satisfactory knowledge of aircraft defensive systems. Familiar with nomenclature, operation, capabilities/limitations of aircraft defensive system components against specific threats. Able to describe impact of equipment outages on mission objectives.

12.4.3.8.2. **Q-** Adequate knowledge of defensive systems but needs improvement. Difficulty with nomenclature, operation, capabilities/limitations of defensive system components against specific threats. Difficulty describing impact of equipment outages on mission objectives.

12.4.3.8.3. **U.** Inadequate knowledge of aircraft defensive systems. Unfamiliar with nomenclature, basic operation, capabilities/limitations of aircraft defensive system components against specific threats. Unable to describe impact of equipment outages on mission objectives.

12.4.3.9. **Area 508. Mission Operations.**

12.4.3.9.1. **Q.** Able to explain support provided to SILENT SHIELD operations and AC-130 tactical operations by support aircraft (e.g., electronic warfare aircraft, command and control aircraft, etc.). Able to explain basic mission employment doctrine of the AC-130 and impact of SILENT SHIELD on AC-130 operations.

12.4.3.9.2. **Q-** Difficulty explaining support provided to SILENT SHIELD operations and AC-130 tactical operations by support aircraft (e.g., electronic warfare aircraft, command and control aircraft, etc.). Able to explain basic mission employment doctrine of the AC-130 and impact of SILENT SHIELD on AC-130 operations, but needed improvement.

12.4.3.9.3. **U.** Unable to explain support provided to SILENT SHIELD operations and AC-130 tactical operations by support aircraft (e.g., electronic warfare aircraft,

command and control aircraft, etc.). Unable to explain basic mission employment doctrine of the AC-130 and impact of SILENT SHIELD on AC-130 operations.

12.4.3.10. **Areas 509 – 549:** Reserved for future use.

Chapter 13

SPECIAL MISSIONS AVIATION EVALUATIONS

13.1. General. 1A9X1 Special Missions Aviation crew members, as well as aerial gunners and loadmasters performing combined duties on AC-130H/U aircraft, require a combined qualification and mission evaluation. Instructors will demonstrate instructional ability on all periodic evaluations. Crewmembers receiving an evaluation based on the criteria in this chapter will be qualified and documented as aerial gunners. (T-2)

13.2. Performing Evaluator Duties. Aerial gunners and loadmasters who have completed cross-utilization training and are evaluator certified may administer evaluations to aerial gunners, loadmasters, or special mission aviators.

13.3. Requirements. Refer to **Chapter 2** for all evaluations and **Chapter 3** for all instructor evaluations. Crew position specific areas are listed in this chapter. (T-2)

13.4. Qualification/Mission Evaluations.

13.4.1. Initial/Re-qualification evaluations. Conduct INIT/RQ evaluations on sorties consisting of both live- and dry-fire missions. Comply with formal school course guidance if available. Minimum required events will include a complete aircraft pre-flight, hot cargo procedures, two separate defensive maneuvers from any scanner position, and a complete aircraft post-flight. Examinees will operate 40mm and 105mm gun systems during all flight phases from pre-flight to post-strike. The 25mm gun system may be evaluated via alternate method. Evaluations will include all **Chapter 2 General** areas and **Table 13.1**. (T-2)

13.4.2. Periodic evaluations. Conduct the periodic QUAL/MSN evaluation in the examinee's eligibility period. Evaluations will include all **Chapter 2 General** areas and **Table 13.1**. Requirements are the same as the initial evaluation; except examinees will operate a minimum of two gun systems (AC-130U) or one gun system (AC-130H) from pre-flight to post-strike. (T-2)

13.4.3. Special Qualification Evaluations. Not applicable.

13.5. Grading Criteria.

13.5.1. **Areas 1 through 19:** Use general evaluation grading criteria in **Chapter 2** of this volume. (T-2)

13.5.2. **Areas 20 through 29:** Use instructor evaluation grading criteria in **Chapter 3** of this volume (if applicable). (T-2)

13.5.3. **Areas 550 through 572:** The following subparagraphs contain the evaluation grading criteria for the grading areas listed in **Table 13.1**.

13.5.3.1. Area 550. Aircraft Limitations.

13.5.3.1.1. **Q.** Correctly stated, understood, and could apply the correct limitations associated with the aircraft, and associated equipment.

13.5.3.1.2. **Q-.** Had difficulty stating various limitations. Had difficulty locating correct limitations in the flight manual.

13.5.3.1.3. U. Failed to state various limitations, or could not locate correct limitations in the flight manual.

Table 13.1. Grading Areas.

AREA	NOTES	AREA NAME
550	3	Aircraft Limitations
551	3	Weight and Balance
552	3	Aircraft Configuration
553	3	Proper Tie-down
554	3	Equipment Stowed
555	3	Passenger Handling
556	3	Trainable Weapons Check
557	3	Hot Cargo Munitions Handling-Upload/Download Procedures
558	3	Engine Running Onload/Offload
559	3	Sensor Alignment Check (AC-130H)
560	3	Pressurization/Depressurization (AC-130U)
561	3	Prestrike
562	3	Pyrotechnics
563	3	Scanner Duties
564	3	Defensive Systems
565	1	Gun Firing Operations
566	3	Post-strike
567	3	Weapons Systems Knowledge
568	3	Weapons Malfunctions
569	3	Air-to-Air Refueling
570	3	Visual Inspection
571-600		Reserved for Future Use
NOTES:		
1. Required in-flight.		
2. Required in-flight or simulator certified for this event.		
3. Required in-flight or alternate method.		

13.5.3.2. Area 551. Weight and Balance.

13.5.3.2.1. Q. Knowledge of aircraft limitations and weight and balance directives was satisfactory. Completed DD Form 365-4, *Weight and Balance Clearance Form Transport/Tactical*, legibly and accurately with only minor errors.

13.5.3.2.1.1. Takeoff or landing gross weights: \pm 500 lbs.

13.5.3.2.1.2. Percent of MAC: \pm 0.5 percent.

13.5.3.2.1.3. Aircraft gross takeoff limits: Not exceeded.

13.5.3.2.1.4. Center of gravity limitations: Not exceeded.

13.5.3.2.2. Q-. Limited knowledge of aircraft limitations, weight and balance directives. Had difficulty completing DD Form 365-4 legibly. Form F contained errors within criteria below.

13.5.3.2.2.1. Takeoff or landing gross weights: \pm 501 to 1,000 lbs.

13.5.3.2.2.2. Percent of MAC: \pm 0.6 to 1.0 percent.

13.5.3.2.2.3. Aircraft gross takeoff limits: Not exceeded.

13.5.3.2.2.4. Center of gravity limitations: Not exceeded.

13.5.3.2.3. **U.** Knowledge of aircraft limitations and weight and balance directives was inadequate. Failed to complete DD Form 365-4 accurately. Exceeded Q-criteria.

13.5.3.3. Area 552. Aircraft Configuration.

13.5.3.3.1. **Q.** Ensured the aircraft was properly configured to accommodate mission requirements. Familiar with various configurations as outlined in applicable directives and properly stowed configuration items that were not used.

13.5.3.3.2. **Q-.** Difficulty configuring the aircraft but did not impede mission. Limited knowledge of various configurations as outlined in applicable directives.

13.5.3.3.3. **U.** Failed to ensure proper aircraft configuration or caused mission delays. Had unsatisfactory knowledge of configurations. Failed to properly stow configuration items.

13.5.3.4. Area 553. Proper Tie-Down.

13.5.3.4.1. **Q.** Correctly calculated and applied correct amount of restraint to a given item. Understood and could state the principals of restraint.

13.5.3.4.2. **Q-.** Difficulty calculating or applying the correct amount of restraint. Did not fully understand the principals of restraint.

13.5.3.4.3. **U.** Failed to correctly calculate or apply the correct amount of restraint. Did not understand and could not state the principals of restraint.

13.5.3.5. Area 554. Equipment Stowed.

13.5.3.5.1. **Q.** Correctly identified/stowed aircraft equipment in its proper location.

13.5.3.5.2. **Q-.** Had difficulty identifying/stowing aircraft equipment in its proper location.

13.5.3.5.3. **U.** Failed to identify/stow equipment in its proper location.

13.5.3.6. Area 555. Passenger Handling.

13.5.3.6.1. **Q.** Correctly briefed and performed passenger handling procedures.

13.5.3.6.2. **Q-.** Had difficulty briefing and/or performing passenger handling procedures.

13.5.3.6.3. **U.** Failed to brief and/or did not perform proper passenger handling procedures.

13.5.3.7. Area 556. Trainable Weapons Check.

13.5.3.7.1. **Q.** Completed trainable weapons check IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

13.5.3.7.2. **Q-** Minor deviations from established trainable weapons check. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

13.5.3.7.3. **U.** Failed trainable weapons check critical component or could not conduct a satisfactory trainable weapons checks. Individual techniques was unsafe and/or in violation of established procedures.

13.5.3.8. Area 557. Hot Cargo/Munitions Handling-Up/Download Procedures.

13.5.3.8.1. **Q.** Followed/explained proper procedures for hot cargo/munitions handling-up/download operations.

13.5.3.8.2. **Q-** Difficulty following/explaining proper procedures for hot cargo/munitions handling-up/download operations.

13.5.3.8.3. **U.** Did not follow/explain proper procedures for hot cargo/munitions handling-up/download operations.

13.5.3.9. Area 558. Engine Running Offload/Onload (ERO).

13.5.3.9.1. **Q.** Followed/explained proper procedures for ERO.

13.5.3.9.2. **Q-** Difficulty following/explaining proper ERO procedures.

13.5.3.9.3. **U.** Did not follow/could not explain proper ERO procedures.

13.5.3.10. Area 559. Sensor Alignment (AC-130H).

13.5.3.10.1. **Q.** Completed sensor alignment IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

13.5.3.10.2. **Q-** Minor deviations from established sensor alignment procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

13.5.3.10.3. **U.** Failed sensor alignment critical component or could not conduct a satisfactory sensor alignment. Individual technique was unsafe and/or in violation of established procedures.

13.5.3.11. Area 560. Pressurization/Depressurization (AC-130U).

13.5.3.11.1. **Q.** Completed pressurization/depressurization IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

13.5.3.11.2. **Q-** Minor deviations from established pressurization/depressurization procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

13.5.3.11.3. **U.** Failed pressurization/depressurization critical component or could not conduct a satisfactory pressurization/depressurization. Individual technique was unsafe and/or in violation of established procedures.

13.5.3.12. Area 561. Pre-Strike.

13.5.3.12.1. **Q.** Completed pre-strike IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

13.5.3.12.2. **Q-.** Minor deviations from established pre-strike procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

13.5.3.12.3. **U.** Failed to pre-strike critical component or could not conduct a satisfactory pre-strike. Individual technique was unsafe and/or in violation of established procedures.

13.5.3.13. Area 562. Pyrotechnics.

13.5.3.13.1. **Q.** Thorough knowledge of pyrotechnics. Identified appropriate pyrotechnics for the mission. Satisfactory knowledge of ground and in-flight emergency procedures.

13.5.3.13.2. **Q-.** Limited knowledge of pyrotechnics. Did not always correctly identify the most efficient pyrotechnics for the mission, but safety was not affected.

13.5.3.13.3. **U.** Lacked knowledge of pyrotechnics. Could not identify appropriate pyrotechnics for the mission. Inadequate knowledge of emergency procedures; compromised safety.

13.5.3.14. Area 563. Scanner Duties.

13.5.3.14.1. **Q.** Demonstrated/explained proper procedures for conducting scanner duties.

13.5.3.14.2. **Q-.** Difficulty demonstrating/explaining proper procedures for conducting scanner duties.

13.5.3.14.3. **U.** Failed to demonstrate/explain proper procedures for conducting scanner duties.

13.5.3.15. Area 564. Defensive Systems.

13.5.3.15.1. **Q.** Identified and explained the aircrafts defensive systems.

13.5.3.15.2. **Q-.** Difficulty identifying and explaining the aircrafts defensive systems.

13.5.3.15.3. **U.** Failed to identify and explain the aircrafts defensive systems.

13.5.3.16. Area 565. Gun Firing Operations.

13.5.3.16.1. **Q.** Completed gun-firing operations IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

13.5.3.16.2. **Q-.** Minor deviations from established gun-firing operations. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

13.5.3.16.3. **U.** Failed gun-firing operations critical component or could not satisfactorily conduct gun firing operations. Individual technique was unsafe and/or in violation of established procedures.

13.5.3.17. Area 566. Post-Strike.

13.5.3.17.1. **Q.** Completed post-strike IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

13.5.3.17.2. **Q-.** Minor deviations from established post-strike procedures. Individual technique was safe, but detracted from established procedures. Used individual techniques instead of established procedure and was unaware of differences.

13.5.3.17.3. **U.** Failed post-strike critical component or could not conduct a satisfactory post-strike. Individual technique was unsafe and/or in violation of established procedures.

13.5.3.18. Area 567. Weapons Systems Knowledge.

13.5.3.18.1. **Q.** Displayed thorough knowledge of weapons systems and subsystems to include 105mm, 40mm, and 25mm weapons, trainable gun mounts, loader weapon control panels, and associated electronic and hydraulic equipment systems.

13.5.3.18.2. **Q-.** Displayed limited knowledge of weapons systems and subsystems to include 105mm, 40mm, and 25mm weapons, trainable gun mounts, loader weapon control panels, and associated electronic and hydraulic equipment systems.

13.5.3.18.3. **U.** Displayed inadequate knowledge of weapons systems and subsystems to include 105mm, 40mm, and 25mm weapons, trainable gun mounts, loader weapon control panels, and associated electronic and hydraulic equipment systems.

13.5.3.19. Area 568. Weapons Malfunctions.

13.5.3.19.1. **Q.** Able to identify and can quickly and efficiently clear all weapons malfunctions IAW tech orders, checklist and instructions. Additionally, examinee demonstrates thorough knowledge on all possible causes for malfunctions. Individual technique complied with established procedures.

13.5.3.19.2. **Q-.** Misidentifies malfunction(s), however uses the correct procedure to clear weapon. Examinee is unsure of possible causes. Non-critical steps to clear malfunction performed out of sequence. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

13.5.3.19.3. **U.** Incorrect procedures used to clear malfunction. Examinee does not know possible causes for malfunctions. Critical steps to clear malfunction performed out of sequence or could not clear malfunction in a satisfactory manner. Individual technique was unsafe and/or in violation of established procedures.

13.5.3.20. Area 569. Air-to-Air Refueling (AAR).

13.5.3.20.1. **Q.** Satisfactory knowledge of air-to-air refueling procedures. Adequate knowledge of air-to-air refueling system components and locations. Accomplished all air-to-air refueling procedures, including leak checks during contact, IAW with approved checklist and directives. Properly configured the aircraft prior to completion of the preparation for contact checklist.

13.5.3.20.2. **Q-** Demonstrated limited knowledge of air-to-air refueling procedures. Limited knowledge of air-to-air refueling system components and locations. Accomplished air-to-air refueling procedures with minor errors, omissions, or deviations. Performed limited checks during contact. Performed aircraft configuration with minor errors or omissions that did not affect successful mission accomplishment.

13.5.3.20.3. **U.** Had inadequate knowledge of air-to-air refueling procedures, system components and/or locations. Accomplished air-to-air refueling procedures with major errors, omissions, or deviations critical to safety of flight. Failed to properly configure aircraft before completion of preparation for contact checklist. Failed to perform required checks during contact.

13.5.3.21. Area 570. Visual Inspection.

13.5.3.21.1. **Q.** Completed visual inspection IAW tech orders, checklists, and instructions. Individual technique complied with established procedures.

13.5.3.21.2. **Q-** Minor deviations from established visual inspection procedures. Individual technique was safe, but detracted from established procedures. Used individual technique instead of established procedure and was unaware of differences.

13.5.3.21.3. **U.** Failed visual inspection critical component or could not conduct a satisfactory visual inspection. Individual technique was unsafe and/or in violation of established procedures.

13.5.3.22. Areas 571-600: Reserved for future use.

TOD D. WOLTERS, Lt Gen, USAF
Deputy Chief of Staff, Operations

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 11-2AC-130, Vol 1, *AC-130 Aircrew Training*, 3 Aug 2012

AFI 11-2AC-130, Vol 3, *AC-130 Operations Procedures*, 29 Jun 2010

AFI 11-200 *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 19 January 2012

AFI 11-202, Vol 2, *Aircrew Standardization/Evaluation Program*, 13 Sep 2010

AFI 11-202, Vol 3, *General Flight Rules*, 22 Oct 2010

AFI 11-215, *USAF Flight Manuals Program*, 22 Dec 2008

AFI 11-290, *Cockpit/Crew Resource Management Program*, 15 Oct 2012

AFMAN 24-204_IP, *Preparing Hazardous Materials for Military Air Shipment*, 3 Dec 2012

AFMAN 33-363, *Management of Records*, 1 Mar 2008

AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materials*, 11 Nov 1994

ATP-56(B), *Air to Air Refueling*, 22 Jan 2010

AFSOCI 11-2DSO, Vol 2, *Direct Support Operator Aircrew Evaluation Criteria*, 12 December 2013

TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*, 10 Feb 2010

Adopted Forms

AF Form 8, *Certificate of Aircrew Qualification*,

AF Form 8A, *Certificate of Aircrew Qualification (Multiple Aircraft)*,

AF Form 847, *Recommendation for Change of Publication*,

AF IMT 4031, *CRM Skills Criteria Training/ Evaluation*,

AFTO Form 781, *ARMS Aircrew/Mission Flight Data Recorder*,

DD Form 365-4, *Weight and Balance Clearance Form Transport/Tactical*.

Abbreviations and Acronyms

A3V—MAJCOM Standardization/Evaluation

AF—Air Force

AFI—Air Force Instruction

AFPD—Air Force Policy Directive

AFSOC—Air Force Special Operations Command

AG—Aerial Gunner

APU—Auxiliary Power Unit
AAR—Air-to-Air Refueling
ASR—Airport Surveillance Radar
ATA—Actual Time of Arrival
ATO—Air Tasking Order
BAQ—Basic Aircraft Qualification
BDA—Battle Damage Assessment
CAS—Close Air Support
COMSEC—Communications Security
CRM—Crew Resource Management
CSS—Communications Surveillance Suite
DD—Department of Defense, usually associated with DoD forms
DFDR—Digital Flight Data Recorder
DoD—Department of Defense
DR—Dead Reckoning
DSO—Direct Support Operator
DTA—Dual Target Attack
DVR—Digital Video Recorder
ECM—Electronic Countermeasures
EPE—Emergency Procedure Evaluation
ERO—Engines Running Onload/Offload
ETA—Estimated Time of Arrival
ETP—Equal Time Point
EWO—Electronic Warfare Officer
FCO—Fire Control Officer
GPS—Global Positioning System
GTC—Gas Turbine Compressor
HQ—Headquarters
HUD—Head-up Display
IAW—In Accordance With
INS—Inertial Navigation System
IP—Instructor Pilot or Initial Point

IR—Infrared Sensor System or Infrared Sensor Operator

IRCM—Infrared Countermeasures

INSTM—Instrument

JTCG/ME—Joint Technical Coordinating Group for Munitions Effectiveness

KIAS—Knots Indicated Airspeed

LM—Loadmaster

LNO—Liaison Officer

LOC—Localizer

MAC—Mean Aerodynamic Chord

MAP—Missed Approach Point

MDA—Minimum Descent Altitude

MDS—Mission Design Series

MM—Millimeter

MR—Milliradian

NAV—Navigator

NAVAIDS—Navigational Aids

NDB—Non-directional Beacon

NM—Nautical Mile

NVG—Night Vision Goggle

OGV—Operations Group Standardization/Evaluation

OPR—Office of Primary Responsibility

OPSEC—Operations Security

PAR—Precision Approach Radar

RETA—Revised Estimated Time of Arrival

RNP—Required Navigation Performance airspace

ROE—Rules of Engagement

RVCT—Rendezvous Control Time

SAD—Sensor Angle Display

SCA—Self-Contained Approach

SCNS—Self-Contained Navigation System

TACAN—Tactical Air Navigation

TAR—Target Acquisition Radar

TAS—True Airspeed

TDR—Tactical Data Receiver

TIC—Troops in Contact

TO—Technical Order

TOT—Time on Target

TOLD—Takeoff and Landing Data

TV—Television (Electro-optical) Sensor System or Television (Electro-optical) Sensor Operator

U—Unqualified or Unsatisfactory

VDP—Visual Descent Point

VMCA—Minimum Control Airspeed

VOR—Very High Frequency Omni-directional Radio-range

WST—Weapon System Trainer

Terms

Air-to-Air Refueling (AAR)—Airborne fuel onload by fixed-wing receiver aircraft.

Combat Entry Point—A geographical point inbound to the objective area where the hostile environment is penetrated.

Deviation—Performing action(s) not in sequence with current procedures, directives, or regulations. Performing action(s) out of sequence due to unusual or extenuating circumstances is not considered a deviation. In some cases, momentary deviations may be acceptable; however, cumulative deviations will be considered in determining the overall qualification level.

Equal Time Point (ETP)—The point along a route at which an aircraft may either proceed to the first suitable airport or return to the last suitable airport in the same amount of time based on all engines operating.

In-Flight—The in-flight requirement for certain evaluation areas refers to duties in the aircraft during ground and flight operations.

Interfly—Intermixing of crewmembers from different units in the same aircrew or unit aircrews flying aircraft assigned to another unit.

Night Vision Goggles (NVG)—Self-contained, battery-operated devices that amplify light to enhance night vision.

Rendezvous Control Point—The planned geographic point over which the receiver(s) arrive in the observation/astern position with respect to the assigned tanker.

Rendezvous Control Time (RVCT)—The planned time that the receiver and tanker will arrive over the Rendezvous Control Point.

Self-Contained Approach (SCA)—An approach conducted using self-contained, onboard navigation systems.

Time On Target (TOT)—The actual time an aircraft arrives or is required at a geographic point.

Tweak—A computation performed either manually or by fire control computer to correct for errors in weapon or sensor alignment and to solve for the ballistic wind. The purpose of performing a tweak is to cause ordnance to impact on target.